THE
PEDAGOGICAL SEMINARY
Founded and Edited by G. STANLEY HALL

VOL. XVII SEPTEMBER, 1910 No. 3

PSYCHOANALYSIS AND THE UNCONSCIOUS

By HARRY WOODBURN CHASE[1]

Theories of the unconscious in anything like the modern sense of the term date back to Leibnitz, who, in his refutation of the theory of Locke (55 pp. 47-52), basing on the law of continuity, taught that noticeable perceptions arise by degrees from those which are too minute to be observed. There are, he says, changes in the soul of which we are not conscious, for they are too slight or too gradual to become material for perception, "but if any one directs our attention to them immediately after, and makes us notice, for example, some noise which was just heard, we remember it, and are conscious of having had at the time some feeling of it." Also a complex perception like that of the noise of the sea, for example, must be made up of the perceptions of the noises of each individual wave, "since a hundred thousand nothings cannot make something." Such unnoticed perceptions make up a large part of the personality of the individual, and in consequence of them the present is "big with the future and laden with the past." Such "*Petites perceptions*" explain the pre-established harmony of all monads. It is they which make

[1]The writer's thanks are due to President Hall, both for suggestion and inspiration from his lectures on "The Unconscious," and for personal assistance and encouragement; to Professors Burnham and Baird for criticism and suggestions; and to Dr. Theodate L. Smith for references to literature, especially in the section on dreams.

His hearty thanks are also due to those of his friends who, knowing his interest, have given him personal experiences, often of a confidential nature. In no case has such an experience been used without permission; some of the best and most convincing were too personal for use, and others have had to suffer the lopping off of much of the personal element that makes for conviction.

possible differences in perception which produce "a relation between the perception of colors, heat and other sensible qualities and between the motions in bodies which correspond to them." It is, finally, such imperceptibles which, unknown to us, determine our wills.

Since the time of Leibnitz, theories of the unconscious have been reached from three different points of view; from the metaphysical, from the standpoint of normal psychology, and from the point of view of those who deal for the most part with abnormal phenomena. With the first of these, the metaphysical, culminating in the erection of the unconscious into an absolute principle, comprehending both the organic and the inorganic worlds, in the system of Hartmann (35 a), we are not here concerned; our interest is rather in the theories propounded by the last two groups.

And, first, the question of the unconscious as it has appeared to the psychologist.

Herbart (36), basing his psychology on the conflict of concepts, considered that concepts below the threshold of consciousness are kept out of the conscious field because of the inhibitive influence of other concepts. In the unconscious they retain their form and structure, and, on the removal of the inhibitions, arise once more into consciousness. The submergence and return of the concepts is dependent on a mathematical series of relations. While the concepts never suffice to inhibit each other completely, a group of two or more may submerge a single antagonistic concept. This play of concepts in a mind, which is devoid of all innate principles save a striving for its self-preservation, is the nodal point of the Herbartian psychology. Feeling and emotion are for Herbart but results of the friction caused by the interaction of concepts. Here we have in a sense, in the doctrine of the persistence of concepts out of consciousness, their struggle to enter its field, their mutual inhibitions and helps, and the quantitive, energetic doctrine of feeling, a point of view which is in its essentials very like the Freudian theory of the psyche, which we shall later discuss at length; here again we find concepts persisting unchanged out of consciousness, striving up into consciousness and kept down by other systems of concepts; here again the feeling-tone of the concepts appears as a dynamic, essentially a quantity; both systems deal with the soul as a problem in mechanics.

Carpenter (12) concluded that changes of which we are unconscious, but of whose results we may subsequently become conscious, may go on under the threshold of consciousness. For purposes of convenience he prefers to express this "unconscious cerebration" in physiological terms, as a function of

the nervous system. He sees in phenomena like the spontaneous occurrence of names vainly sought for, the finding of mislaid objects, spiritualistic phenomena, mediate association, the unconscious maturing of judgments, the often apparently inspirational nature of inventions and discoveries, the development of emotional states without their recognition at the time, and the like, instances of this sort of activity.

Lipps (56, pp. 125-161) assumes that consciousness is sharply delimited, with a definite threshold. On the basis of unnoted elements in perceptual fusion, the phenomena, for instance, of the determination of clang-tint by unnoted overtones, movements of visual accommodation, habitual bodily movements without conscious direction, dreams, usual noises which are noted on their cessation but unnoted while in operation, the impossibility of accounting for the rise of ideas, judgments, and the like, in merely conscious terms, he concludes that every stimulus which under the favorable conditions of a heightened degree of attention is capable of reaching consciousness, is, under all conditions, capable of setting up activities, though not conscious ones, in the psyche. There are for him unconscious processes underlying all conscious ones and accompanying them. These he prefers to think of as psychic, since they belong to the same stream as conscious processes, and so pleads for the right to speak of unconscious ideas and sensations.

Wundt (86, v. 3, pp. 324-331) considers that the elements which Lipps calls unconscious are really dimly conscious, Nor can ideas exist unchanged in an unconscious storehouse, as memory images are different from the original experiences. Ideas out of consciousness do not exist, but only functional dispositions. Since such dispositions are not psychical, we must give up all hope of ever learning the nature of such traces, and bound our psychology by consciousness, which really means by the inter-connection of psychic processes. The greater part of our experiences vanish, leaving no trace; it is only the exceptional experience which is preserved as a disposition and is therefore material which may come again into consciousness. Nor are the phenomena of heredity a proof that definite ideas and feelings are present unconsciously, for what is inherited is merely the organic *Anlage* which permits us to perceive certain sensations and to associate with them certain movements.

Ribot (72, 73) considers that the threshold of consciousness is a definite one, below which ideas disappear abruptly, to be converted into functional dispositions. The subconscious in the static sense comprises habits, memory, and all organized knowledge. Dynamically, it is a matter of cerebral activity,

to be physiologically explained. Cases of multiple personality depend for the most part on physiological disturbances; and subconscious activities—in the neural sense—furnish only the materials in part for the new synthesis. Consciousness is superadded to neural processes for the sake of better adaptation.

Münsterberg (63) pointing out that the subconscious is not a fact, but an hypothesis, sees in all facts, normal and abnormal, adduced to support the hypothesis, the same mechanism which "underlies the ordinary processes of memory, attention, etc.; it is not psychical at all, but a physiological brain process." Its activity may be purposive; that is, adapted to the needs of the individual, for it is alone on the physical side that the principle of causality rules: "There is only an indirect causal explanation of psychical phenomena possible in so far as they can be conceived as accompaniments of physiological processes." Consciousness is nothing but the logical relation of its contents, "the psychical phenomena are in consciousness as the physical phenomena are in nature: there cannot be physical phenomena outside of nature," nor psychical outside of consciousness. Alternating personalities are abnormal groupings of psychical experiences, to be explained in terms of increased or decreased inhibition.

Jastrow (42, 43, 44) considers that "the activity of mind, and with it, the scope of psychology, is broader than the account of it obtained from the direct perception of consciousness" (42). But both conscious and subconscious participate with distinctive functions in a common form of mental activity. There is no independent subconscious self. The subconscious he uses both in the sense of the marginal phenomena usually cited and to include activities inferred from their results; the perception of depth, the direction of sound, illusions, dreams, abnormal phenomena, and the like. Any attempt to explain the subconscious he considers should begin with the normal and proceed to the abnormal. Even in multiple personality the common unity of personality is only partially broken down —such phenomena are merely exaggerations of normal distrait states of mind. The lapsing of functions to subconscious levels is to be explained on motives of economy.

Pierce (69) sees no reason to postulate a subconscious storehouse and workshop, to explain facts like automatic writing, crystal gazing, the inspirations of genius, dreams and the like, but prefers to explain them all by cerebral dispositions excited by appropriate means. It is with him a matter of the neural pattern which has "settled and grown into its modes in the absence of—and probably because of the absence of—all conscious effort."

It is inevitable that those who have concerned themselves chiefly with abnormal phenomena should stress the problem somewhat differently.

Myers (64), who really belongs in this latter group, considers that there is an actual subconscious self, "subliminal," possessed of sensations, thought and emotions, which possesses all the characteristics of conscious processes and in addition is wiser, broader, on a higher level, making visible a "longer spectrum," so that by its means is brought into consciousness material from a vast reservoir of universal energy. In conformity with this view he explains dreams, abnormal manifestations, genius, and the possibility of spirit manifestations, as well as the possibility of survival of bodily death.

Here, too, belong the outpourings of the amateur psychologist who, in consideration of a few abnormal phenomena which seem to him passing strange, wastes endless pages in which the subconscious is evoked to explain and defend all sorts of creeds, beliefs, theses, which are incapable of being held by any sane man on any other hypothesis. A survey of these would be fascinating as a psychological problem, but would take us too far afield. We pass on then to those whose daily intercourse in a clinical way with abnormal phenomena has resulted on their part in an attempt at their serious and scientific explanation.

Janet (38, 39, 40, 41) bases his conception of hysteria on the "splitting of consciousness," and the consequent subconscious functioning of groups of ideas or motor series which have become detached from the self. This subconscious is for him a term for a "disease of the personality," which probably, however, has its germ in normal individuals. It is then, with him, merely a clinical term, but subconscious processes when they do exist are so complex and organized that we must suppose that its activity is both physical and psychical.

Sidis (78, 79) sees in the subconscious a second personality, manifesting itself in the phenomena of hypnotism, secondary personality, insanity, and hysteria. This subconscious self is uncritical, its suggestibility varies directly as the directness of the suggestion made to it, instead of inversely, as is the case with the conscious self. Diseases of the personality are to be explained by disaggregation of the neurones, with accompanying psychic loss of unity, and a suggestibility increasing *pari passu*. The functioning of the subconscious is also seen in social phenomena, and its social diseases in crazes and psychic epidemics.

Prince (70) distinguishes the phenomena of dormant consciousness, including memories of past experiences, and the like, which are passive, from "co-conscious ideas," which

function in all respects like conscious ones except that the subject is not aware of them. The former he prefers to think of in exclusively physiological terms, proceeding from the standpoint that memory is at bottom a physiological phenomenon. Ideas which make up experiences tend to become organized into a "complex," so that if part of the experience is recalled the whole tends to be. These complexes may relate to subject, to mood, or may be formed by temporal relations. Such complexes play a great rôle in psychoses. The welding together of ideas into complexes is founded on physiological neuron conditions; emotive tone is an especially strong factor in this welding. Complexes may be retained even though beyond the voluntary control of the subject, but under such conditions may manifest themselves in co-conscious activity. The phenomena are here too complex and well co-ordinated to admit of a merely physiological explanation. Co-conscious activity is possible in a temporary way even where there is no formation of complexes, as in the case of perceptions which are not noticed, and the like phenomena, including such as Carpenter (12) calls examples of "unconscious cerebration." There is no subconscious self beyond a conservation of such complexes. These, though beyond conscious recall, may affect bodily and mental reactions, as shown by galvanometer and association-reaction experiments. It is not necessary to infer here, however, as does the Freudian school, that the complex itself determines the reaction without being reproduced in consciousness or co-consciousness, but merely that the stimulus word has itself, in ways now forgotten, acquired an association with the complex to whose discovery it leads, and so has come to possess a common emotive tone. Complexes may "split," as it were; the emotive tone passing over to a few elements of the original complex, while the rest drop out. Many examples, both normal and abnormal, are cited in support of this interpretation.

Bleuler (7) reviews the usual facts for supposing the existence of an unconscious stratum in the soul, and concludes that sensations, ideas, thought processes, impulses, even attention, may be unconscious. In fact, for him unconsciousness of a process is the usual thing, consciousness is merely accessory. Ideas become conscious by becoming associated with the "ego-complex," but suffer no other change. Complexes in the unconscious may function in every way like the ego-complex, except that the subject is not aware of their activities. These unconscious activities really dominate our logical thinking through their affective tone. It is not the intensity of sensations or processes, but the condition of the ego-complex, that determines the becoming conscious of an activity. Changes

in the ego-complex, therefore, bring quite different functions into the focus, as is seen in states of revery, dreams, and abnormal phenomena. The conscious is thus to be explained in terms of the unconscious.

With this brief statement of the different views which have been advocated as to the nature of the unconscious or the subconscious, we may now turn to an examination of the most complete theory which has been worked out by those who attempt to explain the normal in terms of the abnormal—that of Freud and his school.

Freud's account of the mechanism of the unconscious is found mainly in the last section of his "*Traumdeutung*" (33, pp. 313-386). For him the unconscious includes three sorts of phenomena; (a) the traces left behind by past experiences (dormant consciousness in the sense of Prince), which are for the moment out of mind but are capable of voluntary recall; (b) processes which are in function and in all respects like conscious processes except that the subject is not aware of them (unconscious cerebration in the sense used by Carpenter, and including also apparently such normal facts as are mentioned by Lipps, Jastrow and others as examples of subconscious activity—processes of fusion resulting in perceptions and the like—the "temporary co-conscious" processes of Prince); and (c) complexes which have so far sunk as to be incapable of presentation at will to consciousness (Prince's complexes which cannot voluntarily be recalled, Janet's subconcious activities).

The first two classes of facts, the conservation of memory traces and the inferred activities which have evidently been like conscious activities except in that they lack the quality of awareness, he includes under the term "foreconscious" (*Vorbewusste*). In the stratum of the foreconscious go on the greater part of our thought processes; the becoming conscious of a process is the exception and not the rule. But there are also conserved in the unconscious complexes which in their very nature are foreign to our usual modes of thought or to our present moral nature. Such complexes are *persona non grata* for consciousness, they are *bewusstseinsunfähig*, and hence sink beyond voluntary recall. They are, however, not destroyed, and are ready to crop out again on proper provocation. For the habitat of such complexes Freud uses the term "unconscious" proper (*Unbewusste*). In order to avoid confusion we shall, following a suggested translation, speak of this stratum of the psyche as the "preconscious."

So far there is nothing new in the theory save terminology, and the assumption of two strata in the unconscious instead of one. The importance of the complex which cannot be

recalled for the formation of neuroses has long been recognized. We may perhaps sum up as follows, Freud's contribution to the subject. First, he has given a new method, that of psychoanalysis, for the detection of such complexes; for the method in the present ramifications and technique is essentially Freud's, though he himself ascribes its origin to Breuer (32). Second, he has postulated a mechanism to account for the whole range of psychological functions, both normal and abnormal; third, he has attempted to show that processes in consciousness are mere symbols of deeper complexes in the psyche, and to prove his assertion by taking the specific concept and showing just what changes and distortions it may be compelled to undergo before it becomes material for consciousness. Fourth, he has laid a stress hitherto absent on the importance of sex in its wide sense as a factor, not only in neuroses but normal life, even in those pre-adolescent years in which its very existence has often been doubted, and, finally, he and his disciples have gone far beyond any one else who has approached the problem from the standpoint of the unconscious in giving a certain pragmatic sanction to this system by showing how its results apply to a whole range of both normal and abnormal phenomena, individual and social.

The way to the discovery of complexes beyond conscious recall is, as we have said, by the method of psychoanalysis. This essentially consists in the interpretation of symptoms, lapses, free-rising ideas, dreams and the like, by following back the train of free associations suggested by the act or thought, without any criticism as to the triviality or absurdity of the links which present themselves. In this way we finally hit, after interpretation on the part of the operator, on the complexes which have determined the act or thought which seems absurd and out of all proportion to the situation. This of course is only the form of analysis; the technique has developed into a very complex system. We find in all such cases that the complex which is beyond conscious recall has manifested itself in consciousness, not directly, but in indirect ways and by a sort of symbolism to be later discussed. But why is it that the forgotten complex is able to get out into consciousness in this circuitous way, when it cannot be directly presented as a memory? Evidently, concludes Freud, it is because it is being inhibited, repressed (*verdrängt*) by something whose power it can escape only in this way. This leads him to postulate in the psyche two systems of energy, the conflict of which accounts, not only for the phenomena of neuroses, but for a wide range of normal phenomena as well. There is first, a primary tendency, which aims at the

discharge of accumulated energy by a sort of blind impulse to avoid pain and seek pleasure. Furthermore, this energy does not tend to discharge through motor channels, but seeks to arrive at the desired pleasure by presenting it to consciousness in a sensory way as strongly as possible; so that it may possibly reach the level of an hallucination. The mechanism of this system is thus regulated exclusively by the moment toward pleasure and away from pain. This machinery is first in development in the individual. Childhood shows us the same blind striving for momentary pleasure that we must think of as characteristic of this system. Now this vivification of sensory images to an hallucinatory value is reached by the method of regression, that is, by the decomposition of the experience by a sort of retrograde movement of the psychic machinery into the raw sensory material of which it is made up. It is the same process that we see when we break up an experience into memory images, except that in the preconscious the regression is much more thorough, and is accomplished by the use of by-paths of symbolism, compromise ideas, condensation—in fact, by any sort of process that will tend to "dramatise" the complex. In a word, the preconscious stratum is set in activity by a wish, that is, by a blind euphoric striving, and tends to realize that wish by regressive methods which tend to raise the appropriate sensory images to the level of hallucinations.

But as the organism develops, another system, that of the foreconscious, is gradually built up. This system is quite different. It seeks satisfaction, not in sensory ways, but in motor discharges, which shall realize a situation in ways teleologically better fitted to the organism and more economical of its energy. So long as the situation to which adjustment has to be made is simple, the process functions automatically, in a reflex way, but as soon as a certain degree of complexity arises and adjustment becomes more and more difficult, we have consideration, the arousal to a certain extent of memory images and the like, that is, thought processes develop as a surrogate of activity. But this system, though it may arouse memory images, does so in a different way from the preconscious. The latter has expended its energy only in arousing pleasant images and disregarding the unpleasant in a way which Freud compared to the tactics of the ostrich.

It is evident, however, that if complete adjustment to a situation is to be made, unpleasant as well as pleasant experiences must be regarded, and hence the foreconscious takes account of both sorts. But, on the other hand, an idea which would bring too great a degree of unpleasantness would interfere with action, and hence such exceedingly unpleasant

ideas are kept out of the foreconscious system—they are repressed. Freud says (33, p. 373), "Let us keep in mind—it is the key to the repression-theory—that the second system [the foreconscious] can only innervate an idea when it is in a position to inhibit the development of displeasure resulting from it." The foreconscious acts like a "censor" on the preconscious ideas.

Thus it is the foreconscious which is the usual organ of our thought processes. Trains of thought which by virtue of being attended to have been for a time in consciousness and for one reason or another are broken off, may continue to work out in the foreconscious, and many trains of thought go on there which never come into consciousness at all. The functioning of the system is logical, normal, in opposition to the regressive activity of the preconscious. The foreconscious and the preconscious are the real psyche, "in its inner nature as unknown to us as the reality of the outer world and given us just as incompletely by the data of consciousness as the outer world through the data of our sense organs." (pp. 380-381.) In fact, this is just what consciousness is, a psychic sense-organ. Like all other sense-organs, it has been developed to perceive only one sort of stimulus, that of psychic quality. And its function is exactly that of a sense organ; what becomes material for consciousness is, in the same way as what becomes material for a sense-organ, in condition to regulate the reaction of the organism through the application of attention. There is thus nothing in consciousness save what is qualitatively toned—apparently with pleasure or displeasure. But in a sort of secondary way consciousness has become an organ for a portion of our thought processes, in so far as language has come itself to be emotively toned through association. Thinking, however, developed and still runs the most of its course on the foreconscious level, as we have seen. The utility of consciousness is that of a sense organ, in that stimuli which are focal for it have an advantage in determining reactions.

This, then, is the explanation of why preconscious ideas come so indirectly into consciousness; they undergo the repression, the inhibition, of the logical foreconscious system—an inhibition which Freud represents by the figure of a censor admitting to the foreconscious system only those preconscious ideas which by judicious expurgation have been made acceptable.

But now how is all this accomplished? We must look at the soul dynamically, thinks Freud, as possessed of a certain amount of energy "spread over the ideas as an electric charge over the surface of bodies" (23). This energy, which Freud

seems to think is a relatively constant quantity for the individual, is the dynamic force which produces all psychic phenomena. Ideas or complexes which possess a high amount of this energy are in a condition to press through and become material for the perception of consciousness. The energy is essentially centrifugal, tending to discharge; in the preconscious system, along the paths of regression, and in the foreconscious, in motor activities and their surrogates. It is none other, apparently, than what we call, in a conscious idea, its feeling-tone. Essentially, however, it is a quantity, but consciousness translates this quantity into the qualities of pleasure and displeasure, in the same way, for example, that differing ether vibrations are translated into qualitatively differing colors. Discharge of the energy means pleasure, its accumulation and tension are interpreted as pain. A complex in the preconscious, then, will be possessed of a certain amount of this energy, and will tend to discharge it, but the foreconscious will inhibit this discharge, which will only succeed when the energy undergoes, by the laws of association, a transfer (*Uberträgung*) to ideas which symbolically represent the complex, and yet which do not lead to the setting free of the displeasure which would be caused by the idea itself. The whole operation of the psyche, then, reduces to a matter of energy relations, and the becoming conscious of an idea is a result of the possession of a certain amount of this psychic energy. We must think of the preconscious as a limbo of forgotten complexes constantly striving, by virtue of one system of energy, to press up into consciousness, and constantly being inhibited by other systems.

Now it is evident that these complexes are for the most part the result of experiences that at one period of the development of the individual were pleasurable—results of the blind striving of the organism for pleasure—but the energy relations of the psyche have so shifted with growth that now, if these became conscious, they would cause intense pain.

We are, all of us, products of a long mental and moral development during which many tendencies, impulses, strivings, pleasures, have been outgrown and left behind. The child is egoistic, self-centered, demanding gratification for his impulses at any cost. He is, as the modern researches of child study have shown him to us, non-moral, with no sure perception of the boundaries between good and evil, or between reality and imagination. The Freudian school have added to this picture of the child two other elements; they have shown that the child has a strong sex life of his own, and that his relations to the members of his own family are other than those of pastoral fancy.

This sex life of the child is a very different thing from that

of adolescent years, but it is none the less strong. Its main characteristics are the relative independence of the different instincts which go to make it up, and the fact that sex-satisfaction is found on the body of the child. (22, 25, 32.) Sexual pleasure may be produced by thumb-sucking, by stimulation of the excretory regions through retention, by masturbation, by spanking,—as in the classic case of Rousseau—in short, most dermal stimulation would seem to have a sexual significance for the child. Also we must reckon with the childish pleasure in nudity, possibly with his love of cruelty that may be almost sadistic in expression, or with masochistic love of submission.

Not only is there this sex life, but when it does begin to externalize and choose objects apart from the body of the child, it finds these first in the person of the parents, and dominantly in the parent of the opposite sex. The Œdipus myth, in which Œdipus kills his father and marries his mother, is quoted by Freud (33, p. 186-7), as darkly symbolizing this period in the life of the child. The child's feelings toward his parent are of course not consciously sexual, nor does he often consciously desire the death of the other parent. But of course for the child death is but a departure; he has no conception of its real significance. And the feeling of enmity toward the parent of the opposite sex is quite capable, in the loose and illogical ways of childish thought, of existing along with the love for the parents that finds expression in making them the source of all power and authority, to be boasted about to other children. But as the child grows, he finds (71) that the parents of others are in some ways superior, and there sets in a process of gradual emancipation from the control of the parents, painful, yet necessary.

It would seem that in neurotics this process of emancipation from parental influence is harder and is less perfectly completed than with normal subjects, as Jung (50) has shown. Abraham (1) has even ventured the hypothesis that the intermarriage of relatives which is so often found where a neurotic strain is present is the result, and not the cause, of the neuropathic diathesis.

The feelings of the child toward his new-born brothers and sisters have also been misunderstood. Examination of both normal children and neurotics shows that there is jealousy of these new arrivals, and wishes for their death—that is, for their disappearance. (22, 25, 29, 32, 48.)

The boy Hans, the story of whose analysis is told by Freud, (25) did not want a sister, and was jealous of her after birth. The girl Anna, described by Jung (48), showed the same tendency. "On the evening before the childbirth," he says, . . .

"the child was in her father's room. He took her on his knee and said: 'Tell me, what would you say if you should get a little brother to-night?' 'I would kill it,' was the prompt answer." And with the birth of a new child in the family begins the scientific quest on the part of the child for the answer to the riddle of birth, leading, as both Jung in the above article and Freud (29) have shown, to all sorts of infantile sex-theories, some of which strongly resemble the content of old myths.

Now all these results only show how different is the type of adult thought from that of the child. Egoism, autoerotic sex tendencies, the direction of the libido toward the parents and the feeling of their absolute authority, jealousy of the other members of the family, all these must be overcome, and in the average case they soon are. So different are our mature modes of thinking that those of the child are forgotten, and our memories of the first few years of life are few and scattering. Most of us, if asked if we ever had such feelings and impulses as those enumerated above, would indignantly deny it, so completely have they passed out of consciousness. But now the energy of these old modes of thought, the strivings of these impulses, must be accounted for. Usually, the energy used up by the child in these prehistoric complexes is diverted to other channels, it becomes intellectual curiosity, art—"the somatic resonance of art is sex," as Scott (76) puts it. In short, the energy diverted from the old sex complexes becomes the motive power that enables the transition to adult methods of thought to be successfully carried through; it has undergone a process of "sublimation." But in the neurotic, so much of the energy is not sublimated; the old complexes, which in the most normal of us still retain some of their former power, are with them so strong as to constantly threaten to break through again. The foreconscious, while it inhibits these activities as such, is not able to stop their presentation in indirect ways. A brief consideration of the Freudian point of view in the abnormal field will show the working of the mechanism in question.

Abnormal. The psychoneuroses furnish us good illustrations of the struggle between preconscious and foreconscious and the resulting changes in complexes which are presented to consciousness. Freud would make such diseases due entirely to the activity of the sex impulses of the infantile kind described above (30a), as is well known. Experiences in later life may occur which permit of being brought into association with these early childhood impulses and raised to a higher power by their energy. These experiences, being for the most part of an unpleasant or shameful nature, the patient attempts to repress. Since they are associated with early sex activities,

it will depend entirely on how much energy these latter, which still exist in the preconscious layer of the soul, still possess, whether the repression is successful. If much of the energy of the infantile sex life has been sublimated, the later experiences cannot have their affective tone sufficiently strengthened to cause any injury. But if the sublimation has been less successful, and the infantile complexes are still possessed of abundant energy, the preconscious complex and the banal experience are in condition to form a strong union, which the foreconscious strives to inhibit. If this inhibition is not entirely successful we get the symptoms of a neurosis, whose cause is thus always in childhood, while its occasion may be an event in later life (24). From this point of view it is that we may speak of a neurosis as a "regression" to the expression of an earlier form of sexual activity. But one thing further—the repressive forces are still so strong that the old impulses and the newer situations, even in their unholy alliance, cannot come to consciousness as such, but are obliged to make use of what seem illogical and indirect modes of presentation, so that the neurotic symptom is in a sense a compromise between two tendencies: that of expression and that of inhibition.

The first and most general of these modes of compromise presentation is that of symbolism. In fact, there is a sense in which every hysterical symptom may be considered a symbolic expression of a repressed traumatic experience, which has itself dropped from consciousness, been forgotten, as we say. A patient whom Freud calls Caëcilie (27) was troubled with neuralgic pains of hysterical origin, which really went back to a situation which she felt "like a slap in the face." Another of his patients was afflicted with severe pains on walking, which analysis shows to express the facts that in a certain family love-affair she could "make no headway" (27). In the Dora case (26), what seemed an attack of appendicitis was really an *Entbindungsphantasie*, nine months after the patient parted from the man she loved, who had quarrelled with her. And the fact that after the attack for some time a new neurotic symptom consisted in dragging one foot, Freud thinks symbolizes that she had—had the phantasy above been real—made a *faux pas*. Binschwanger's Irma (6) saw herself, with floating hair, drowning among the reeds. This really represented in her mind the story of Ophelia, whose rôle she had once learned, and whose tragic story had come unconsciously to her to symbolize her own unhappy life. A girl analyzed by Jung (49) was obsessed by ideas of blood and fire, which were found to have a sexual symbolism and interpretation. In short, the rôle of symbolism here is incalculable.

Another process which is observable in the preconscious is

the change of psychic accent (*Verschiebung*). The events and situations which are really the most intensely accentuated of the complex are either not sent up to consciousness at all, or are sent up in peripheral positions, while the center of conscious interest is occupied by some accessory and unimportant situation. Jung (52) gives the case of a cook who became obsessed with the idea that she had greatly sinned in having her teeth extracted in order by means of an artificial set to make herself more attractive to her lover. Here it was found on analysis that the tooth episode, which consciousness reported to be central, was not so, at all, and that the root of the matter was that she had an illegitimate child whose existence she wished to conceal from her lover. The unimportant things in which she wished to please him had come in her mind to stand for the important things.

Besides the *Verschiebung*, there has also been a process of condensation (*Verdichtung*). A single symptom or idea may represent several traumatic situations, or several elements of one. This appears in the famous case of Anna O., where Breuer found no less than seven traumata corresponding to the one symptom of transient deafness (8). In the case reported by Freud of the young man with imperative ideas (28), the obsessing idea that a rat would injure some one dear to him was the condensed representation to consciousness of several scenes dealing both with the patient's father and his fiancée. A symptom which thus represents different elements is said to be "over-determined" (*ueberdeterminiert*). According to the general formula for hysteria, there ought to be at least two determinants for every symptom, one from a childhood impulse and one for the experience of later life brought into association with it. As a matter of fact, there are usually more than two. The possible complexity is well shown in the case of Dora mentioned above. With this patient a nervous cough and hoarseness were found to represent, first, the fact that her mouth and throat had an erogenic significance due to her persistent and long-continued thumb-sucking in infancy then, by a *Verschiebung* from the genital to this other erogenic zone, it represented self-reproach for bad habits into which she had fallen. It was also found to occur when her lover was away and to disappear when he returned, signifying that, were she his wife, she would behave toward him differently than did his actual wife, who fell sick when he came home and got rapidly well as soon as he left again. It also had a further significance which served to identify her with the wife of her lover, whom she suspected of a liason with her own father.

The work of the preconscious is further shown in the change of ideas into their opposites—the representation of an embrace,

for example, by a backward-thrown position of the arms (24). Emotions may be reversed, an unconscious wish that something may happen is often represented in consciousness by a fear lest it happen. The young university student who was Freud's patient was tormented by the fear that something might happen to his father, which really was determined by an unconscious wish of the Œdipus type mentioned above. In this way feelings of enmity often express themselves in increased tenderness.

Other results show that in the symptoms the patient may identify himself with one or several people whose situation he imagines to be like his. Binschwanger's Irma mentioned above identified herself with Ophelia as well as with several other people. The girl Dora, one day complaining of a new symptom, a nervous stomach trouble, was through analysis discovered to have identified herself with a relative who had a similar complaint, and between whose case and her own there were parallels that served to identify her with the patient in the mind of the latter. This is closely akin, as Jung has pointed out, to the delusions of insane patients, who say for example, "I am Napoleon," "I am Socrates," having unconsciously identified themselves with the person in question through some trait which they imagine they possess in common (54).

Dreams. In his "*Traumdeutung*" (33) Freud has attempted to show that we find in dreams the same struggle between the opposing systems, with the same compromises which we have described above.

Present theories of dreams tend to ascribe their origin to physical or organic stimuli (86, v. 3, pp. 649-662; 83; 13, pp. 198-200; 82); experimentally, the importance of the external stimulus has been shown by Maury (58), Ladd (54 a) Mourly Vold (60), Miss Calkins (10, 11), Titchener (83) and others. It has been shown that associations in dreams are superficial (57, p. 284; 58; 82), devoid of apperceptive control and tending to run in fixed grooves (86, v. 3, pp. 6496-62; 81, p. 180; 21, ch. 2, 83), that isolated impressions tend to fuse into a whole (18). It has been pointed out that it is usually trivial occurrences of which we dream (15, 65), but that the dreamer may recover in dreams experiences, even of childhood, possibly atavistic (75), long since forgotten (45, 18, 58, 84).

Now the Freudian theory, while admitting the prevalence of the external stimulus and the apparent triviality of the material, considers that we must ask why the dreamer interprets the stimulus as he does, the same stimulus often giving widely different interpretations. Freud furthermore finds that the apparently trivial nature of the material is but a cloak for deeply significant processes. The dream never says what it

means. Applying the method of psychoanalysis to dreams he considers that we find exactly the same results as with the symptoms of neurotics; what seems out of all relation falls into a co-ordinated whole. The dream, to put it in Freud's formula, is "the disguised fulfillment of a repressed wish" (33, p. 115). That is, at the bottom of the dream there is in every case a preconscious complex striving to make itself felt. But the inhibition of the psychic censor is too strong for the complex to break through *in propria persona*. As a result the preconscious system is driven to concentrate its energy on ideas which seem relatively harmless, but which really symbolize the complex.

The process is somewhat as follows: a train of thought is broken off during the day as too trivial, foreign, or difficult for further occupation of consciousness. It then sinks into the foreconscious stratum, and there keeps on working for awhile. It may dissipate its energy, but if it is fitted in any way to be brought into associative connection, however loose, with a preconscious complex, the two are linked together. The foreconscious train of thought which has worked itself out without the knowledge of consciousness gives us the "dream-thoughts" (*Traumgedanken*). The energy which vivifies the thoughts and makes them persist instead of coming to an equilibrium is that of the unconscious impulse or wish. The dream thoughts are as it were captured by the preconscious complex, and sink to the preconscious level of the soul. As a result they from this time are subjected to the same processes which are going on in the preconscious, by the way of regression, and themselves can now get into consciousness only indirectly, by evasion of the censor. Now the way in which they accomplish this is to concentrate their energy on a few of the dream thoughts, nodal points, as it were, and send these up to consciousness as representatives for the whole series. It is just those which are the most trivial and harmless on which the repression of the censor will weigh least heavily, and consequently it is these which are chosen; this it is which makes the dream seem so absurd and disconnected. There has been what we may call "dream-work" (*Traumarbeit*) going on, fitting the thoughts for presentation. There is thus a distinction between the *latent dream content*—the dream thoughts, with energy furnished by the unconscious impulse—and the *manifest dream content;* the dream is to be considered as a hieroglyph to be deciphered by the work of psychoanalysis.

The following dream related to the writer shows well the distinction between the manifest and the latent content.

The dream was that a former acquaintance of the dreamer,

with whom he had once stood in rather sentimental relations, was to be sent to an insane asylum, and the dreamer was responsible for the condition in question. He was to be arrested, but escaped by clothing himself in an army uniform, and so was able to board a train without detention.

Association with the latter part of the dream gave experiences in which the dreamer had known of a man who escaped arrest by such a procedure. They also brought thoughts of a relative who had served in the army for some time, and about whom the dreamer was worried. The night before he had written a letter expressing concern as to this relative, who did not appear in the manifest content, though the latent content was concerned with him. The first part of the dream led back to a former experience, which led the dreamer to suspect insane tendencies on the part of the former acquaintance, which really led to the breaking of the friendship. Questions further revealed the fact that the wife of the relative in question had at one time been brought to a very neurasthenic condition. The dreamer had also several times expressed the opinion that the wife was a hindrance to his relative. The dream had thus seized the opportunity of identifying her, through the neurasthenic condition, with the former acquaintance, and had found a way of riddance from her. The two persons who appeared in the manifest content, the former acquaintance and the dreamer himself, were thus not at all the persons with whom the dream really concerned itself; the relative in question and his wife.

Evidently the writing of the letter had started a train of associations which went on working themselves out without conscious recognition, until they had succeeded in unifying widely separated experiences, and presenting a chosen few of these; chosen, it will be seen, with a view to concealing the real nature of the dream from consciousness.

The dream had, then, according to the Freudian theory, said something as follows: "The wife of this relative of mine is a hindrance to him, as my former friend would have been to me, had things gone on as they were. Both are alike in their neurotic condition, both belong to complexes of the same emotive tone. Therefore the wife of my relative may become insane, as I have often thought might be the fate of my former friend." Now the wish that the wife of a relative become insane is not one fitted for direct presentation, and it is accordingly sheltered under the more natural and obvious thought that the former friend was insane—an identification made possible by the common qualities of the two.

When we succeed, says Freud, in building up again the full structure of the dream thoughts by psychoanalysis,

we find that they have gone on working out in the logical ways characteristic of the foreconscious until they reached a conclusion which made it possible for associations to be set up with a preconscious complex. From that moment—and the process has been going on probably for hours—they become subject to the laws which rule the preconscious; a constant striving to emerge and a turning and twisting to evade the inhibition put upon them by the foreconscious. Now when we trace out these changes we find that exactly the same sort of illogical activity has been going on that we have already seen in the case of neuroses. We find that the dream thoughts (and it must be stressed that these have not been conscious, though their point of departure may have been taken from experiences of the day before the dream) have undergone condensation, displacement, dramatisation, and the rest until they seem an absurd jumble.

To consider first the process of condensation. Only a few of the elements of the dream thoughts are presented in the manifest dream content; these must both be relatively harmless and rich in associations—nodal points in which trains of associations leading out to the complete structure of the dream thoughts may meet. Every element in the manifest content is thus, as every hysterical symptom, "over-determined." The associations may be exceedingly superficial. In a dream of the writer, two persons were condensed into one with the features of A and the manners of B. The association which made possible the fusion was the superficial one that both were engaged to men whose last name happened to be the same. In a dream related by Freud a colleague appeared as his uncle. The fusion here was made possible by the working out by the dream thoughts of the conclusion that the colleague in question was, like the uncle, not a respectable member of society. The condensation process may result in the building of new words, as in dementia præcox. The word "Autodidasker," appearing in one of Freud's dreams, separated on observation into "autor," "autodidakt" and "Lasker-Lasalle." The first part gave associations with an "author" of family acquaintance, and finally led to family cares. "Lasker-Lasalle"—both names of men who met death because of women—led to the name "Alexander," that of a member of the family with whom such a situation might have to do. Jones, in his excellent article on Freud's dream theory (46), mentions the word "Olve" or "Olde" as giving Alva and Van der Velde, both associating themselves with trains of thought having to do with the Netherlands, with which subject the dream was concerned. Ferenczi (19) relates how a composite image made up of a physician and a horse led to childhood experiences with horses, to

thoughts of the father, by an unpleasant association, and by a transfer of the same association, to the physician in question. There is in such cases a sort of compromise between the trains of thought, resulting in the production of a *Mittelvorstellung* which may serve to express several at once.

Now turning to displacement and change of accent, we find that ideas which are central in the dream thoughts either do not appeal at all in manifest content or appear on the periphery and as accessories, while the images which occupy the important place in the manifest content are really not important in the dream thought. This is because the important thoughts are of a nature which causes them to be repressed more strongly. In the dream of the insane friend which was related above, the two persons cited in the dream thoughts did not appear directly at all in the manifest content. In a dream of the writer, what was really the central feature in the dream was represented in the manifest content only by a bluish light, like stage moonlight, which led immediately back to the memory of a picture whose description had been incidentally read during the evening, which really symbolized the central thought of the dream. In another dream, the writer was to be shot as an experiment by a sort of cross-bow arrangement complicated by a black box. The box was a camera seen in operation the day before, the bow was determined by a chance reference to William Tell. The two were then fused in the dream, and the apparatus, by far the clearest image of the dream, was, as the only possible interpretation showed, really an accessory part of the dream thoughts, which really dealt with a desire which the writer hopes was far from his conscious thoughts.

The dream thoughts have further undergone changes, by the method of regression, into images which are for the most part visual. There has been a "dramatization," to use Jones's translation of "*Rücksicht auf Darstellbarkeit.*" There may have been abstract thoughts in the dream content, but they must be presented in image terms. It will be remembered that the activity of the preconscious is, on the Freudian theory, through sensory channels. There are of course dreams in which reckoning and logical thought seems to go on, but these activities are merely symbolic of real activities in the dream thoughts. A reckoning of money in a dream quoted by Freud meant really, for example, that the dream thoughts had been busying themselves in calculating the number of days to elapse before a certain event. There is as it were, a sort of sign language, which can here be only touched on. Simultaneity of presentation means that some likeness or contrast — either actual or wished for—exists in the dream thoughts between the objects so presented. Puns are used, as in Freud's dream of a leaky

hotel, with rain outside and everything "overflowing" with water, the element in the dream thoughts symbolized in this way was the word "superfluous" (*Ueberflüssig*). The temporal sequence may be reversed, as in the hysterical symptom, or the activity may be represented by its opposite—dreams of entering the water may sometimes be shown to mean coming out of the water—birth dreams. A cause and result sequence may be represented in the dream by one dream followed by another. A further process which the dream undergoes is that of "secondary elaboration" (*Sekundäre Bearbeitung*). This, however, is carried on after the dream has passed the censor and is akin to the process of apperception, by which the dream is given a setting in the mental content, gaps are filled in as in inferences in perception and the like. This is due to the activity of the foreconscious, which, though diminished is still functioning. This activity is shown by the presence of elements in the content which have nothing to do with the dream thoughts, but are inserted as it were to round out the dream.

On the affective side, one often finds dreams dealing with unpleasant situations in which there is no unpleasant emotion, and *vice versa*. But this discrepancy vanishes when we remember that the affect belongs to the latent and not to the manifest content. One of Freud's patients dreamed that her nephew was dead, but felt no sorrow. The dream when analyzed, recalled that on the death of another nephew her lover, from whom she had parted, came to the funeral, and was thus really a wish, not for the death of the nephew, but to see the lover again. Hence of course there was no sorrow in the dream. The affective tone may be changed into its opposite before it can pass the censor, and is usually diminished. Tenderness in the manifest content, for example, may really mean teelings of enmity in the latent content, as in the exaggerated fenderness of hystericals.

Symbolism of all sorts is of course rife in dreams, as the above examples show. A dream of a young man (28) that he saw the girl whom his family wished him to marry with gold pieces for eyes merely meant that, should he marry her, it would be for her money and not for her "*beaux yeux.*" The dream may use popular phrases in its symbolism, and generally behave in a fashion that reminds one strongly of flashes of wit of all sorts. This leads Freud elsewhere to found a theory of wit on the same psychic mechanism (34). The symbolic presentation in the dream is well shown in the dream of a student who had some time before been in a somewhat unconventional situation which, while harmless in itself, had been somewhat of a shock to some members of the family. In the evening a letter had been written concerning the situa-

tion, in which the student's point of view was defended. In the dream the whole situation was symbolized by the taking of a bath in unconventional surroundings, with a procedure in which the complex was interestingly present in all details in a manner which cannot here be gone into without a violation of confidence. The affair was finally terminated by the discovery of the procedure by the landlady, whose horror the student reflected was due to the fact that she did not have a "university education." What determined the use of the bath as a symbol was in part due to the taking of a bath in the evening.

The childhood moment comes out in dreams as in hysteria. This, on the Freudian theory, is to be expected, since preconscious impulses are so largely those of childhood. This childhood moment is shown for example, in dreaming of dead relatives with feelings of anguish, a dream which goes back to the childhood Œdipus *motif* above mentioned. This dream is a so-called "typical dream," occurring with most people, and, like other typical dreams, is usually subject to the same interpretation. In the same way, dreams of being in public with insufficient clothing go back to the childhood exhibition-impulse. The sexual, indeed, plays a great part in dreams, and has a whole chapter of symbolism of its own, in a way strikingly like that of myth. Indeed, the same sort of interpretation which Freud gives to dreams has been given to myth (2, 71, 74).

It ought of course to follow from the theory of the dream as a wish-fulfillment that dreams of very young children, before repression has begun, are openly the fulfillment of wishes; since the dream mechanism is essentially a wish-fulfilling one. That such is the case Freud has attempted to show by a collection of children's dreams. His data, however, stand much in need of further verification before this question can be settled. De Sanctis (75), who has done the most thorough work with the dreams of children, has unfortunately nothing to say on this point, and it has escaped the attention of other investigators as well.

The difficulty which such a theory of dreams meets in the nightmare and *Angsttraum*, Freud attempts to evade by saying that the censor uses the bodily discomfort which is usually said to be the source of such a dream, by incorporating it into a painful dream with the idea of accounting for it in ways that will, on the whole, tend to preserve sleep rather than to wake the sleeper. This good intent of the censor sometimes miscarries, when the circumstances are unpropitious, and we have the waking that follows an especially painful dream. The dream, in general, thus appears as the preserver of sleep,

by serving as a safety-valve for the escape of the energy of repressed complexes. We may, then, unite hysteria and dreams in one general formula. Both are due to a foreconscious train of thought, animated by preconscious impulses and so subject to the laws of the preconscious, undergoing condensation, displacement, and the like, with a view to escaping the censor. In hysteria the complex thus aroused seizes the motor innervation and symptoms arise; in dreams the motor gates are shut and we have instead images rising to the vividness of hallucinations. Both are due to a compromise between opposing wishes of the preconscious and foreconscious; both represent the fulfillment of repressed wishes.

Lapses. In his "*Psychopathologie des Alltagslebens*" (31), Freud attempts to apply the same mechanism to a class of phenomena which we may designate as "Lapses" in the broad sense of the term, including mistakes in speaking, in writing, certain classes of forgetting, absent-minded acts and the like.

Meringer and Mayer (59), Douse (16), Bawden (4), Wells (85), in their discussions of lapses, all see the importance of elements which are unconscious or dimly conscious in their production. The general point of view is that lapses are for the most part due to the interference of two or more elements of thought or action, may be sometimes physiological in mechanism, but for the most part depend on complex conditions of association.

Freud, taking the term lapse in the broad sense, includes in his category phenomena which are not abnormal, which are momentary, and which are recognized as slips when attention is called to them, while the true motive for the act does not lie on the surface. We all, says Freud, are inclined to think that the little things of life are due to chance, while we recognize determinism in its great issues. But every least flitting thought is in reality determined and over-determined, like the hysterical symptom and the dream-image. Consciousness indeed does not account for the determination, which is to be sought for in the unconscious. Superstition is due to the feeling of chance in the psyche which we project into the outer world. Paranoiacs attach attention to trifles, projecting into the mental life of others what is really significant in the patient's own unconscious.

We do not make lapses in the important things, and most people are vexed when lapses are called to their attention. The lover, for example, who should forget an appointment with his sweetheart would be rightly accused of waning affection. Trifles in such a matter are significant, but no more so really than they are in other things. In this, as in all lapses,

there is really a conflict between two opposing trains of thought, and the reason why we do not recognize the true nature of the lapse is due to the same activity of the censor that we have seen in dreams and neuroses. Lapses may be, however, of all degrees, from those due to a harmless complex—Freud is not clear whether in every case he holds that the complex is in the preconscious, but apparently he thinks that there may be lapses due to the interference of a foreconscious with a conscious train of thought as well—to those needing careful psychoanalysis before their true nature is revealed. The word or activity which tends to be suppressed or assimilated in the conflict may be either something significant in itself or may stand in associative relation, usually superficially, with some other element which is significant. A distraction or rather a division of the attention is merely the favoring condition of the lapse, but the motive lies deeper.

In cases of misspeaking (*Versprechen*), the emphasis has usually been thrown on disturbing influences within the sentence. Freud, however, inclines to the opinion that the true motive is usually to be sought in the arousal of complexes from without the sentence, which stand in some associative relation with it.

Some of his examples of this point are the following. A woman remarked "I do not know how my uncle is, I see him now only *in flagranti*. She meant *en passant*, but the real remark was equally well justified. He said one day to a patient "*Heute wird es also ernst*," and prolonged the "*ernst*" to "*ernscht*." A little later the patient misspoke—"*Ich clappe zusammen wie ein Tassenmescher—Taschenmesser.*" Then, laughingly, *Ja, das ist nur, weil Sie heute ernscht gesagt haben.*" But later it was found that the name "Ernst" was of primary significance in the neurosis. Patients sometimes speak of their father as their brother, showing an identification in the hysterical sense discussed above. A case cited by Meringer and Mayer "*Es war mir auf der Schwest . . .* " for "*Brust so schwer*," may be due to a simple condensation, or to the functioning of a "*Schwester-Bruder*" complex. In misreading, in the same way, for "a marriage feast on the Ostsee" Freud read "marriage feast in the Odysee." This was due to the fact that he had been recently occupied with the story of Odysseus and Nausicaa. The writing of a date, substituting "October 20" for the correct September date, was a wish-fulfilling anticipation of the date written.

A university student whose early life had been spent in Japan, but whose native tongue was English, made the following lapse which shows well the interference of a childhood complex. The conversation concerned some work which the

student was doing which necessitated sleeping in one of the rooms of the laboratory. Sleep was disturbed, among other things, by the rounds of the night-watchman, and the student remarked: "He comes around early in the morning to unlock the building for the (here a hesitation, and then came the Japanese, and finally the English word) mail-man." Free association gave the image of the Japanese mail-carrier, whose rounds were usually made late, pounding on the door after the family had gone to bed, and shouting "Mail." The disturbance was evidently due to the interference of association from childhood, set up by the common element in the situation, resulting in the substitution of the Japanese for the English word.

A student who had been flattered by the offer of a desirable position was discovered singing "Cover my *exalted* head," etc., apparently without consciousness of the lapse. It is obvious what train of thought was responsible for the substitution.

The same mechanism holds in the forgetting of names and purposes. Of course a name may be forgotten because the neural disposition is weak, but in general it is forgetting and not memory which is the true psychological riddle. The motive of forgetting, Freud thinks, is to be found in painful associations, with which the forgotten experience is allied. In many cases a conscious process has been going on a short time before which has been broken off because it is painful, and now tends to crop out again. When names are forgotten owing to such a disturbance, an *Ersatz* name appears, which stands in associative relation to the suppressed one. Freud, attempting to think of the name of the painter Signorelli, found instead the names Boticelli and Boltraffio, both of which he recognized as wrong. There had taken place a short time before a conversation leading to suppressed thought of death and sexuality, connected with the names Herzegowina and Bosnia. He thinks that, by superficial association the "Her" (Herr) of the former name caused the "Signor" of Signorelli to be suppressed. (The word Herr also appeared in an important sentence in the conversation.) The name Botticelli is then a condensation of "Bosnia" and the unsuppressed "elli," Boltraffio is a fusion of Bosnia and "Trafoi," which latter name had been suggested just before by the repressed theme in question. The forgetting of the name "Nervi" at another time, he thinks due to the intrusion of the professional complex, which, so to speak, guarded him against thoughts of "nerves" outside of business hours. A man forgot the name of a former friend who married the girl with whom he had been in love. Here the motive is obvious. In the same way, we forget more complicated things. Freud, commissioned to get a purse, went through the streets unable to find the shop of which he

was in search. On looking it up in the directory, he found that the place he wanted had the same address as the home of a former friend from whom he was estranged. He had unconsciously omitted that street in his wanderings. A mother told him a painful story of her sick son, only to deny sincerely a week later that any such state existed, or had been mentioned.

There are also a class of cases in which the essential part of the experience drops out, leaving only a memory of unessential things (Deckerinnerungen). A case related to the writer was as follows: Several girls had rooms together in the same house. One morning one of them, in a merry mood, was executing a dance in somewhat negligee attire when the landlord appeared on the scene unexpectedly, to the great mortification of the dancer. Some years after, at a reunion of some of the former group, the incident was mentioned. The young lady in question remembered the dance, but had utterly forgotten the state of her attire, and was greatly disturbed when the incident was recalled to mind. Such changes seem particularly prone to affect childhood memories, owing to the nature of childhood experiences mentioned above.

Repressed impulses tend also to betray themselves in symbolic ways by symptomatic acts, as the losing of objects once valued, such as a wedding ring, may symbolize waning affection. Freud clumsily knocked over and broke an inkstand which his sister had suggested that he get rid of, as it did not match the new furnishings of his room. He had refused at the time, but thinks the fact of the breakage later showed that his unconscious processes were more in accord with his sister's wish than was his consciousness. A man mislaid a book given him by his wife, toward whom he had become indifferent, but found it again without difficulty when she had reinstated herself in his good graces by nursing his mother through a severe illness. Freud before the door of a certain patient found himself taking out his latch-key, as though he were before his own door, as a symbol that here he really felt "at home." Symbolic acts may lead, through remorse, to self-injury in symbolic reparation for the wrong done, as in the case of a woman who had been reproached by her husband for her conduct. She went for a drive after a sleepless night, and, as the horse shied slightly, leaped from the carriage and broke her leg. She bore the pain with surprising fortitude. The whole proceeding Freud makes symptomatic of her remorse, working out, of course, by unconscious methods, in somewhat the same spirit which leads men to give gold coins instead of copper to beggars, without con-

scious intention, but really in a sort of propitiation to fate—an outcropping of the ancient spirit of sacrifice.

To gather these instances together and express them a little more in psychological terms, we seem here to be dealing with a class of phenomena which show a certain lack of normal adjustment in language or in act, motivated by a conflict between two opposing trains of thought. The repressed element crops out by a disturbance of normal activity, but not directly in the typical cases, a fact which is due, says Freud, to the activity of the censor. Since the repressed element is limited in its expression to the disturbance of a train of activity already given, we get the same phenomena which we have found in dreams, condensation (as in names), displacement (as when only the unessential part of an experience is remembered) and a high degree of symbolism. The essential feature is that the repressed experience or train of thought is here, as in the other phenomena studied, of a painful or disturbing nature, or touches a complex significant for the individual. It does not seem from Freud's analyses that he everywhere supposes the activity to go down to the preconscious stratum of the soul, though he implies that this is the case in some instances.

It cannot be said that Freud's discussion adds much to our knowledge of lapses, save to emphasize, as has already been done by the American investigators, the very complex trains of thought which may result in a lapse. His discussion adds practically nothing to his argument for the two unconscious strata in the psyche. What it does serves to show, perhaps, is the folly of trustiug to introspection alone in determining the motivation of our acts.

Such are the main classes of phenomena—neuroses, dreams, and lapses—on what Freud bases his theory of the psyche. We need not here deal with the application of the theory, to wit (34), which is one of its weakest points, or to literature (2, 33 a, 71, 74), which is one of its most promising, beyond the statement that he finds essentially the same sort of processes in the jest and in the folksoul; the myth is very like a dream and to be interpreted by the same rubrics. The whole domain of his findings in the domain of sex we must also leave here untouched, except for the brief note above.

Critical. In what has been written above, the attempt has been made to consider as concretely as possible the nature of the evidence on which Freud's theory of the stratified psyche is based. In order to make the presentation as sympathetic as possible, a number of corroborative experiences from other sources have been introduced. We have, then, on the basis of cases like those given above, a theory of the psyche which

supposes three—or really two, for the foreconscious and conscious are much alike in essentials—systems of energy in the soul, each of which tends to act in a different way. The lowest, the preconscious, deals with its material in a very different way from the foreconscious, and we must therefore suppose a sharp line of demarcation between processes going on under the influence of the energy of the foreconscious and those which are under preconscious influence. The motive force is, as we have seen, a certain quantum of psychic energy, coming to consciousness as pleasure and pain, pain when tension is too great, and pleasure when discharge is made possible. And the essential reason why processes in the preconscious are submitted to the sort of activity which we have seen is that only in that way can they be taken up into the activity of the foreconscious and so attain to that discharge which means pleasure; for the foreconscious can only incorporate an idea in its system when the pain aroused by it is not too strong to interfere with activity. Freud thinks of the phenomena of condensation, displacement, the formation of compromise ideas, superficial and symbolic association, over determination, and the like, as processes, which, though abnormal on the conscious level, are perfectly normal modes of functioning for the preconscious stratum, and which are due both to the inherent tendency of the preconscious system of energy to seek pleasure by sensory gratification and to avoid pain, and to the fact that such processes find a teleological justification in that in this way the censor can be avoided.

Now the psychologist, in his criticism of such a theory, must start from the normal, conscious process, instead of from the abnormal, and he ought to seek to explain just so far as is possible, all manifestations of the sort given above in terms of normal conscious processes. Only where such an explanation breaks down will he be justified in going to the field of the abnormal and the "unconscious" for his explanation. Freud has, of course, begun at the other end of the problem, and has explained the normal in terms of the abnormal. Let us, on the other hand, take our point of departure from generally admitted psychological facts.

It is common knowledge that there are stimuli which are too slight to reach consciousness, but which may nevertheless set up neural excitations, and may emerge later under proper conditions. Of such a nature is the "memory after-image," as when, to use an oft-quoted example, one is absorbed in work and does not hear the striking of the hour, but is able later to count the strokes after they have ceased. Such also are the phenomena seen in crystal gazing, when an image

which was not consciously seen emerges later in the crystal. But there are many stimuli which never reach consciousness, but which nevertheless set up neural excitation, as is shown by the fact that stimuli may summate and finally break through to consciousness. This of course shows that excitation processes set up do not at once cease, but require a certain time to die down again to the zero-point. Memory images, when revived, may be quite different from the original experience, not only in the dropping of details, but in their distortion, showing that extra-conscious modification in the neural dispositions underlying them has taken place. Pawlow (58 a) has shown that complex processes of organization may take place without the mediation of consciousness, but in a purely physiological sense, as shown by the fact that the flow of saliva in dogs could be made different, not only as it naturally was, for different stimuli, but for objects associated with those stimuli which had themselves no food value. In the case of the interpretation of perceptions and the like it can of course always be argued that a great part of the fusional processes do not persist subconsciously, but have dropped out altogether, so that we get in consciousness the result of practically all the activity which is set up, without the necessity of supposing unconscious connecting links between stimulus and interpretation. But there are of course many sorts of phenomena, like those mentioned above, which do not admit of such an interpretation.

And, to look for a moment at the other end of the series, there is plenty of evidence that processes which have been in consciousness and have dropped below the threshold, do not at once cease their activity.

Müller and Pilzecker (61) have shown that in the learning of a series of syllables, if during the intervals between repetitions the subject is occupied by some task requiring close attention, less is gained, as shown by the next repetition, than in case less mental energy is used; the stimuli, though they have been dropped from consciousness, are undergoing changes and organizations that require not only time but a certain amount of energy if the process is to be carried through. This excitation may last so long, or perhaps rather may be so easily renewed, that the syllables learned tend to rise spontaneously into consciousness some time later. Ebert and Meumann (17) have also found that a certain time element is necessary for the setting of associations. The studies of Peillaube (68) and Burnham (9) of the phenomena of retroactive amnesia show that it is the events occurring just before the shock which are forgotten, as they have had no time to form associative connections. The everyday experience of

finding that a name is forgotten, and, when attention is turned away, having it come to consciousness, must also be interpreted from this point of view. Indeed, if, as Claparède (13) thinks, association is absolutely dependent on subjective simultaneity, it is impossible to account for the formation of a great part of our associations on any other ground than that of supposing such continued activity under the threshold, as Offner (66, p. 23) has pointed out.

If, furthermore, we accept the doctrine of psychic determinism, we are forced to the conclusion that a great part of our associative activity goes on under the threshold of consciousness, for the series which we get in consciousness show themselves to be full of gaps and apparently determined often by mere chance.

Now there are at least three lines of evidence which seem to point to the fact of determinism of psychic processes. The first of these is to be found in the experiments of the Zürich school. Jung and Riklin (51) experimented with associations arising in normal subjects when asked to give the first word suggested by a stimulus word. Under such conditions one might expect free-rising ideas, for the subject is apparently unhampered in his choice. But the results of the experimen give a strong presumption that such is not the case. The type of the reaction word given was found to be dependent on degree of education, sex, attention, individual peculiarities, and especially to stand in relation to the complexes of the subject. Even the grammatical form of the response was found to vary with the individual, and to be fairly constant. Jung's further experiments with neurotics (53) showed that the stimulus word was especially prone to call up a word which related to a complex by which the individual was obsessed. The experiments of Fraülein Fürst (35) have further shown that related persons, and especially those living in family relations, show in their reactions a greater degree of similarity than unrelated, and that families whose members habitually live in "the same circle of ideas" show almost identical reactions. The reaction to a stimulus word surely seems chance enough, and yet we see how many factors may determine it.

Other testimony to the fact of psychic determinism is borne by the existence of the phenomena of mediate association. Such are cases in which the idea or word suggested seems out of all relation to the stimulus, and yet the subject is able by a little thought to supply the missing links of association.

Such associations have been investigated by Aschaffenburg (3) and other experimenters with the word-reaction method, and by other methods by Scripture (77), whose experiments, however, when carried further by Münsterburg

(62) Howe (37) and Cordes (14) gave negative results. Flournoy (20) sees in them the cause of colored bearing and similar phenomena. Wundt (87) thinks that all links in mediate associations are dimly conscious; but the weight of evidence seems to point to the fact that the links may drop below the threshold in many cases.

A third line of evidence for determinism is offered by all the work on lapses, both that of Freud and others, mentioned above. All three lines of evidence go to show that the conditions which determine a reaction or idea may be vastly more complex than consciousness reports. We are not concerned here so much with the question of whether this determinism is absolute, or whether conditions of central nutrition or blood supply may occasionally cause a break in the plexus of associations, as Sollier (80) and Claparède (13) would have us believe. Our point is that many of the determinants of most, if not of all, reactions, must be sought for below the threshold of consciousness, which probably never reports a situation fully and adequately.

Such is the nature of the evidence—not to mention here other phenomena cited by the authors mentioned at the beginning of this article—for holding that below consciousness there is a vast field in which activity may go on, which, if it were accompanied by the quality of awareness, we should surely call psychic. It is possible without any modification of this position to see in such activity only a matter of neural mechanisms, and to restrict the term "psychic" to a matter of awareness; in any case the evidence points to the fact that this region below consciousness is a dynamic reality, larger and even more important than consciousness. There is thus between a degree of excitation which means admittance to consciousness on the one hand, and complete lack of excitation on the other, a median ground, of vast extent, which is beyond the domain of introspection. Beyond the lower end of the spectrum there are vibrations which do not stimulate the eye, and which may, however, be detected by appropriate means. It is the same here; activities may go on in the infra-conscious region which are not sufficiently intense to enter consciousness, and which, however, may be very complicated and important.

The fact of the existence of this region, concerned either in neural or psychic terms, will hardly be disputed; debate rather centres around the question of its significance. Too often the facts brought forward in support of a theory of the unconscious have been those only met with in exceptional cases; let this serve as apology for reviewing, as has been done, some of the facts which show the unconscious at its everyday work, which make a little more evident the great part which it plays in all our affairs.

To take one further step: must we, even if we admit that such activities can all be explained in terms of neural excitation, declare with Wundt that for that reason they are beyond the limits of our psychology? Can we hope to know nothing of the nature of such activities? It must of course be admitted at the start that all that we can know of them is by inference from their results; they are themselves never, from their essential nature, material for introspection. But yet these results may be interpreted so as to throw some light on the nature of the processes involved.

It will be convenient to take our start from the phenomena of association. Wundt (86 III, p. 549) has differentiated between outer and inner association, or, as some of his pupils have put the distinction, between association by form and association by content, making outer association refer to the connection of ideas by spatial or temporal co-existence or succession, while inner association designates connection through content, including the categories of association by co-super- and subordination, similarity and contrast and causal and purposive connections. We shall also include under the term outer association connection through sound, such as clang and rhyme associations, word completion and the like. One who is following a logical train of thought finds ideas arranging themselves by the connections which characterize the phenomena of inner association. But it is a well-known fact that in revery, in fatigue, intoxication, and the like states, outer associations play a more prominent rôle. The experiments of Aschaffenburg mentioned above (3) bear out the experiences of everyday life in this respect. In one series of his experiments he had his subjects come to the laboratory fatigued by a night of work without nourishment. He found that under these conditions there was an increase of outer associations, associations by sound, by well worn and habitual paths, and the like. He concludes that under the influence of fatigue a stimulus works less through its content and more through its sound. He also found the same phenomena under the influence of alcohol and narcotics.

Jung and Riklin (51) in their experiments, found similar results. They also found that, contrary to what might perhaps be expected, educated persons showed more outer associations than uneducated. But this is easily understandable from the point of view that for uneducated subjects the task is one producing close attention, while for educated the associations are more peripheral in nature. The experiments of Ziehen showed similar results, as does work with the insane.

Both from the experiences of everyday life and the experimental evidence we must conclude that a lessened power or

degree of attention means an increase of outer associations, of association by form. But this is merely saying that outer associations are characteristic of marginal, inner of focal, consciousness. As we get away from the centre of consciousness outer associations increase. Now one step more. When we consider the phenomena of mediate association shown in the experiments cited above, we find that both Aschaffenburg and Jung and Riklin conclude that the greater part of mediate associations are associations through form and not through content. In some such cases the links may be conscious, but we have seen that there is reason to think that sometimes the process falls below the threshold. If we grant this, we find that we have here exactly what we might expect, the unconscious link shows the same determination by sound, when later it is dragged up to consciousness, the same sort of outer association, that characterizes marginal consciousness.

The phenomenon is at least suggestive. Why ought we not to expect to find in the infraconscious region merely a higher degree of that dissociation which we have found to increase as we go from the focus to the margin of consciousness.

We expect to find in focal consciousness a narrow field, shifting not altogether at hazard, but through association by content. Somehow the set of consciousness brings it about that, on the whole, a given path is followed, but with many stumblings by the way, many fleeting adventures, irrelevancies, that show us how difficult is the straight and narrow way of following a train of association by content. Now whatever diminishes the power of apperception, of attention, diminishes this power of internal association—fatigue, drugs, preoccupation with other matters. What is characteristic of marginal consciousness, then, and, by inference, of the region below consciousness, is a lack of the selective activity of apperception. This is a truism so far as its application to marginal consciousness is concerned; but its importance as applied to the field below has hardly been recognized.

Let us conceive, then, of a vast range of activities, neural if you like, devoid of properties sufficient to bring them to the focus of consciousness, but with sufficient activity to influence the course of ideation through association—or the propagation of neural excitations. Here associative processes will be carried on by habitual and well-worn ways, by superficial associations that are formal, mediated by images and not by abstract connections, by sound, rhyme, especially by a common feeling-tone, in short, by every way, however superficial, in which excitations set up in one neuron group may be propagated. Here we have, then, a condition in which currents are not drained off in one direction by one dormant tendency,

but run out in all directions—a condition to which we tend always to relapse even in our most logical moments.

This may give us, for example, an explanation of the unconscious solution of problems, inspirations, and kindred phenomena so often cited. We all know how often a solution which strikes us as obvious when once it is arrived at is hindered by the fact that our thought processes have been held by our attention too closely in rutty ways. Now with a relaxation of the attention and the consequent greater loosening of the associative bonds, wider elements enter in, there is more diffusion of activity, and it would be strange if now and again fruitful points of view were not arrived at merely by the free play of associations. Such associative activity may well go on below the threshold, and is it not in such cases just the play of outer associations there present that accounts for the new point of view and the solution of the vexatious problem. When the process is finished and the results arrive in consciousness, we infer that the process must have been a logical one to have arrived at such a result, forgetting that the goal is the same, whether reached by devious ways or by a straight line from the starting-point.

Such an hypothesis of the nature of the activity of the infraconscious region must of course be entitled to consideration only as it can explain the phenomena in which its activity is manifest. The collection of phenomena in which the unconscious has been traced most keenly and with most in sight is undoubtedly that given by Freud in his various works. But in attempting to account for them he has been led to conceptions which have at least this objection, that they are cumbersome and psychologically crude, and may well be dispensed with if the facts can be explained more simply. We refer especially to the theory of the two systems of energy in the soul, and to the theory of repression which is bound up with this point of view.

Let us inquire first what the phenomenon of repression really means in psychological terms. When one attempts to "repress" a group of ideas with a common feeling tone such as we call a complex, one notes, first, that the attempt is made, as it were, indirectly, by turning the attention to other things, so as to drain away, so to speak, as much energy as possible from the complex. The motive force of the activity we may agree with Freud is, in the broad sense, a turning away from pain and to pleasure. This diversion may be successful, and the complex lose so much energy that it is no longer material for consciousness for a time. But it is only a short way below the surface. If in the course of our occupation with other things a stimulus comes which remotely sug-

gests the experience with which the complex deals, we all know how easily it appears again above the surface, and we all know how such a chance association becomes fixed, so that the odor of a flower, the sight of an animal, which was either part of some affectively toned experience, or, during the time when the complex was more or less constantly in consciousness, came in some chance way to stand in relation to it, will call up the complex after years. Now in case the complex was particularly unpleasant, so that attention was persistently diverted from it, the complex itself may become practically devoid of energy, or, better, the habit may have been formed of instantly drawing off energy which would excite it, into other, more or less habitual ways, and yet these associations, strongly persistent because they shared the strong feeling-tone of the complex, may continue, when their original significance has been forgotten (70). A few elements, either in the complex itself, or in experiences associated with it, have come to symbolize the complex and possess its feeling-tone—it has split, as Prince (70) says, or else it has transferred its energy to some chance association. Not enough has been made of this period of hours or months when the complex constantly vibrated between consciousness and the infra-conscious. The possibilities of association here are infinite, so that almost anything may come to symbolize the complex, as Binet has shown that there is practically nothing which may not be brought into association with the sex instinct (5). This is of course essentially Prince's idea of the splitting of the complex. But we must also suppose that the complex may at times be in activity, though this activity may not be sufficiently intense to cause it to come to consciousness. This comes about by the mechanism above described—processes of the most trivial nature may sink below consciousness and yet remain in activity for some time. It is sufficient on our hypothesis that one of these should stand in the loosest associative relation to the complex to make possible an excitation of the latter by the former. The complex does not energize the experience of the day, but the process is the reverse. And yet the habit may have been so strongly formed of causing the energy originally flowing through the complex to flow in other channels that the complex cannot itself come to consciousness, while it may remain active for some time and contribute to the coloring of infra-conscious associations. The more elements the complex contains and the stronger its feeling tone, the greater the number of stimuli that may excite it, though it has lost the power of becoming excited sufficiently to come to consciousness. It is thus not necessary to posit that the complex retains its full

energy and is subject to a "censor" in order to explain the facts of repression; an explanation much more in accord with psychological facts is to suppose that the repression of the complex and its symbolic representation in other ways comes about by the constant tendency to drain energy away from the complex, and by the shunting of energy to other lines, determined by superficial association, and especially by association through a common feeling-tone.

But neither is it necessary to take the point of view advocated by Prince, that the complex has passed over to a "co-conscious" region, where it may function separately and aggregate to itself other complexes. For this concept, again, supposes the energy of the complex to be unabated, but barred from conscious expression; the whole range of facts can be explained merely as phenomena of the sort of association which is characteristic of the region below consciousness; not a co-consciousness which is equal to, and possesses all the characteristics of, personal consciousness, will best explain these phenomena, but the hypothesis of a region of one piece with consciousness, yet lacking its focal qualities; in a word, of increasing dissociation.

The phenomena of repression can thus be explained without recourse to any "censor" save the fully conscious tendency not to permit the mind to dwell on unpleasant experiences. Nor do the facts cited by Freud with regard to lapses, dreams, and neuroses, oblige us to take his point of view.

In the case of lapses, it has been pretty well made out that a certain class are due, as in speech and writing, to a conflict of elements within the sentence; as the writer at this moment distracted by the noise of a hurdy-gurdy, wrote the word "sentence" beginning with a "c"—evidently a case of anticipation of the "c" following later in the word. But there is without a question another type, that of the Freudian lapse, in which a complex which is not conscious is the disturbing factor. Now we know that when a complex is in consciousness it tends to betray itself by lapses in cases of relaxed attention favorable for the setting up of outer associations. It is not by any means impossible to suppose that a complex may here be excited in the infra-conscious and may betray the excitation by causing a lapse in motor or sensory activity, by the ordinary phenomena of association, without seeing in the conflict the interference of a preconscious and a foreconscious, and the activity of a censor. We may consider the mechanism of this somewhat more closely in speaking of dreams.

To take up the Freudian conception of dreams piecemeal, the first way in which it differs from prevailing theories is that it points out the distinction between the "manifest" and the

"latent" content of the dream. There is a considerable body of evidence—Jones tells us (46) that about fifty thousand dreams have been analyzed by the Freudian school—in favor of the contention that dreams present the important in terms of the unimportant. One needs only to observe his own dreams from this point of view, even without much knowledge of the technique of psychoanalysis, to become convinced that at the bottom of many of them there stands the functioning of one or several complexes which do not themselves appear in the dream. Jung (54) has already pointed out that it is not necessary to accept the doctrine of the Freudian censor to admit this fact. But Freud makes the further assertion that every dream fulfills a repressed wish. He seems to use the word "wish" in two senses, which he often confuses. The first is that the consummation of a definite "wish" in the usual sense of the term figures in the dream, the second is a much wider sense which seems to mean a more generalized striving of the organism toward pleasure which is realized in the dream. In this sense any impulse of the individual is, according to his theory of pleasure-pain motivation, a wish-fulfilling activity—any activity of the organism falls into the wish category. In this sense to say that the dream presents a fulfilled repressed wish is merely saying that it presents activities which have been abandoned by the individual, and, of course, represents them as actual. It is true that the dream may present an experience which was unpleasant at the time it was undergone, but it does so because the experience has been brought into association with a complex of a similar sort, dating from childhood, at a time when the activity in question was pleasurable. In this sense the formula means hardly more than that every dream at bottom contains a complex representing activities at one time pleasant to the organism, but which would now cause pain.

Suppose now that an experience of the day before drops below the threshold and remains there in activity for awhile. Under the looser conditions of association there present, it is very easily possible for such activity to radiate out by associative paths, and set in activity other traces. Several experiences having a common element might very easily serve as the basis for a concentration of associations which would converge to a point representative of all of them, energizing it sufficiently to permit of its coming to consciousness in cases of relaxed attention, as in fatigue, or lapses, or in sleep. This would give us the phenomena of condensation and overdetermination which Freud has pointed out, and it is significant that he finds the product made possible by just such loose ties of association. Many experiences of the day before may result in the produc-

tion of a few elements, and the processes of association may of course be very complex, uniting elements perhaps of the most trivial nature, for some days back, which are still fresh and therefore easily excitable, or old, habitual, perhaps vocational, paths of long duration. The experiences of the day before which were responsible for the setting up of the activity may be so trivial as to be forgotten, so that the exciting cause of the dream appears to us to be in events some distance back, which nevertheless were responsible only in a secondary way; or, as we do not know how long the phenomena of infraconscious excitation may last, it is possible that such experiences of a few days before may be directly responsible for the dream.

But during this infraconscious activity, it is very possible that complexes will be struck upon and set into activity. From such a new centre associations will in turn radiate out, finding in their turn new associations, and so on, until we get a very complex structure built up. In this final finished structure we find a strange jumble of events whose association is only possible by supposing the infra-conscious activity of complexes and experiences in a very complex way; the process is so complicated that considerable time must have been necessary for its completion; in these mediate ways events that seem to stand in no relation to each other are brought into association, and only on the basis of some such activity can we explain the fact that such a strange mixture has been worked into a unity, which leads back, on analysis, to a complex. The process may conceivably go on for hours, being given new excitation constantly by incoming stimuli which stand in relation to one or another part of the whole. Now when such a complex is set in activity it would not be able to break through into consciousness during the day, for lack of energy, and when at night the conditions would be more favorable, there are still two factors militating against such a result; the lack of energy of the complex itself, and the fact that the "dream-work" has already built up a unified structure, of material particularly suitable for presentation because of its freshness and its habitual nature. In the structure the complex appears as a determinant, and not directly, for it has only been a link in the chain that permitted the building up of the manifest content of the dream. However, some unimportant elements of the complex may appear, for it is just these which will have been least divested of their original energy, and will be more easily revived, and which will have served as the starting points and nodal points for many associations more easily than the more important elements of the complex. In some cases such elements may have so split off from the complex that, as Prince holds, the complex may not function at all as such; there may

be all degrees conceivably, from the case where the complex is strong enough to appear directly in the dream to the case where only a portion of it functions at all. Thus we will get all degrees of displacement, from the case where the really important complex holds the center of the stage, to the case where it not only does not appear, but even was not functioning as a whole.

Nor is it hard to explain on this theory the reason for the prevalence of images and the almost total lack of logical connecting links in the dream material, for the infraconscious methods of association are by no means those characteristic of abstract thought, but rather of the succession of images seen in such a phenomenon as revery. There is no need to postulate a train of logical dream thoughts working out to a logical conclusion in a foreconscious stratum and captured by a preconscious complex, then turning and twisting to avoid a hypothetical censor. The whole process may be explained merely by the hypothesis that the infraconscious works by methods of outer association.

As to the question of the affective tone of dreams, we may agree with Freud that it belongs to the latent and not to the manifest content, for the associations which result in the building up of the dream probably depend in their connection in no small measure, as is characteristic of such outer associations, on a common feeling-tone. The phenomenon of secondary elaboration we may explain with Meyer (59a) by supposing it to be a partial resumption, due to a near approach to the waking state, of the critical attitude characteristic of a high degree of attention.

There is really nothing in such a theory that is in conflict with the results which have been won on the study of dreams, and we may accept the ruling theory that the dream is a product of passive and habitual association. The theory adds, however, this; that we must suppose in many cases the processes of dream work to have been going on for some time before the occurrence of the dream. Then a peripheral stimulus may occur and, as Freud has already suggested is true in one class of dreams, set off the whole structure by a sort of explosion. This explains how a complicated dream may occur within the brief time before a stimulus wakes us, as Freud has already pointed out. We may even admit that if we knew all the conditions, we should find a peripheral stimulus contained in every dream, but we would make it the condition, and not the cause of the dream. The theory supposes, further, that there is in the dream a difference between the manifest and the latent content, due to the activity of the infra-conscious, that is, that a complex is concerned in the dream. Whether this is so in

every dream is another matter. It might easily be conceivable that some dreams occur directly on the presentation of the stimulus, that we do not get always activity long-continued enough to bring a complex into the dream; that the mind has, as Titchener suggests, been left especialy suggestible in certain ways by the events of the day, so that in such dreams we really do find the product of most of the activity set up by the stimulus. It has been further urged that dreams of repeating the days' activity do not fit in with the Freudian interpretation. This may be quite true; such dreams come in light and disturbed sleep, and depth of sleep as a factor in the production of dreams is a factor which Freud strikingly disregards. The deeper the sleep, the greater the relaxation of the bonds in which attention holds our thoughts, and the more opportunity for the results of such dream work to break through into consciousness. It is, too, in the dreams of neurotics, who are characterized by the presence of great complex-masses, that we should expect to find the greatest number of dreams referring to such complexes. All that we are here urging is that there do occur dreams which are amenable to interpretation, which do show the activity of a complex, and which are only explicable on the basis of more or less long-continued infraconscious activity. We might expect to find the proportion of such dreams to vary with the individual; Freud has generalized perhaps too hastily in finding every dream amenable to his formula. But that such dreams, dealing with complexes, do occur, one has only to examine his own dreams to discover.

If now we turn to the realm of abnormal phenomena, we find evidence of the same mechanism of association. A complex which, as mentioned above, vibrates for a time between consciousness and the infraconscious is probably for some time in a condition of continuous activity, either in consciousness or below. As the habit is gradually formed of sending energy through other channels, the activity of the complex gradually dies away.

Now, in case a neurosis is formed, we may find parts of the original experience which continually obtrude themselves on consciousness, with a strong feeling-tone. These are complexes which have not been successfully de-energized. We may find again, that the original experience has been forgotten and cannot be recalled. But other, apparently meaningless, ideas or symptoms, obsess the patient, which, when the original complex is dragged up by psychoanalysis, are found to be of a similar feeling-tone, and bound to it by ties of exactly the sort of formal association which we have been considering. Such associations may have been formed during the time when

the complex was in consciousness, or, as in many of Freud's analyses, evidently during the time when the complex was in infraconscious activity. We are not obliged to suppose in such a case that the complex exists somewhere as strong as ever, but that again we have the phenomena of transfer of its energy through paths of superficial association; a conception which is like that of Prince, except, as mentioned above, in the assumption which he makes of a co-conscious region to which the complex has retired; and, indeed, such a conception is unnecessary from his own point of view; his own theory of the "splitting" of the complex covers the facts in the case. There is no need of invoking the hypothesis of a co-conscious to explain the phenomena of alternating personality, in which we should look for the intensification of normal moods with their tendency to exclude from consciousness all that is not congruous to the mood. Experiences of different feeling-tone tend to group similar ones around them and to form different systems, from one of which we pass to another with more or less of a sharp break. This is true in normal life; the business man in his office and on vacation makes the transition, it is true, somewhat gradually, and we do not speak of dual personality. Yet there has been a rearrangement of outlook and habits, and even a little amnesia of his routine duties. Let the same transformation occur suddenly, and a little more completely, and we speak of a dual personality. Even where one personality seems to co-exist with the other, such co-existence is always inferred either from two sets of activities carried on at once, as in some automatic writing, or from memory of one personality for acts done by the other. In the former case, it is to be noted that nothing attained by automatic writing shows anything more than the activity of such a system as we have called infraconscious; and, indeed, much of the material so obtained shows strikingly just the same loose trains of thought that we have discussed before; in this case, as in hysteria, portions of motor series have become involved, but it is the habitual, and the fantastic, and the superficial, that result, and it is not necessary to suppose a second consciousness in explanation.

In cases in which one personality remembers the acts of the other, we are not forced to conclude that both co-existed, but rather that such a phenomenon may be explained by the ordinary laws of memory and association, as Münsterberg (63) points out. The break between systems of ideas is sharp enough that ideas come from one into the other system with a certain seal of strangeness upon them, and are thought of as the thoughts and acts of another personality, which this one could only observe.

The rôle of superficial and symbolic associations—the fact that neuroses are association-phenomena—these are just the facts which Freud's investigations bring out, and which are the very facts we should expect to follow from an hypothesis like that which we have been discussing. The complex may be formed in childhood, be completely forgotten, but still possess some energy, though not enough to raise it to consciousness. Let now, in later years, some experience of similar feeling-tone occur and, if the older complex is still in existence, conditions are very favorable to bring the two into association, either at the moment of the experience, or later, and so to give the phenomena of over-determination which Freud describes.

This will of course be particularly easy in the case of sexual complexes, owing to their strong feeling-tone and their power of forming widely radiating associations. The plasticity of all connected with sex, the ease with which anything comes to symbolize it, may give us a clue as to why sexual complexes are so potent. The symptoms of neuroses are thus nothing but associations set up from a complex, which have become stereotyped, and the connection either forgotten or never present to consciousness; which latter case Freud seems to find in so many analyses. If we accept his doctrine that the whole number of hysterical symptoms, including anasthesias, paralyses, and the like, together with all symptoms of the other neuroses, are but such associations, we see here the working out of the same phenomena of outer association that we have seen to be characteristic of infraconscious activity, with all the mechanism that we have seen in dreams, of condensation, displacement, multiple identification, and the like. Neuroses are then, as Freud has insisted, but exaggerations of normal phenomena, ways of reaction which have become stereotyped and habitual; to use his phrase (32) "neurotics fall ill of the same complexes with which we sound people struggle."

Now all this activity which results in de-energizing a complex both in sound individuals and in neurotics is an attempt in a literal sense to dis-associate the complex—to exclude it from the chain of associations. Personality is not broad enough to adjust to it, as Freud would say, to take it up into the ordinary train of associations.

The efficacy of psychoanalysis will then be essentially as Freud states it (32). An origin is found for the apparently senseless reactions, the complex is brought up into consciousness, and built into the associative activity; personality is broadened sufficiently to face the disagreeable instead of recoiling from it, adjustment is made to the situation, and, as always when we succeed in reacting to a situation, the corrosive force

of the complex is lost, as well as the potency for evil of any symptoms which may have represented it.

It was Wundt's dictum that the regions of activity below the threshold of consciousness could never be material for our psychology. This dictum it has been the essential service of Freud to disprove. He has shown us, incompletely enough, of course, by what ways, foreign to our methods of logical thought, activity here goes on, how emphasis is shifted, logical relation omitted, compromise ideas arrived at, fusion and condensation brought about; and how all this characterizes not only abnormal conditions, but everyday life. He has pointed out convincingly that we must look below consciousness for the springs of psychic life, and shown us how at fault as to our natures and acts introspection usually is. Our criticism has been rather directed at his theory of the structure of the psyche. The region below consciousness is hard to conceive as he would have us. It is rather, as Jastrow has said, of one piece with consciousness. We may even conceive very well of it all in neural terms, in terms of dispositions and their *Bahnung*. But we must suppose this stratum to be the most essential part of our personality. Here behind the scenes the greater part of psychic business is transacted; it is just such outer associations that are responsible for the greater part of our reactions, that we proudly consider to have been the work of our logical thinking, as Jones (47) has well pointed out. We only get in consciousness a few of the many determinants. Prejudice, likes and dislikes, attitudes, "*Einstellungen*," are derived in great measure from the activity of the infraconscious, and compared with its functioning the abstract train of thought characteristic of focal consciousness, always painful to hold, always tending to lapse, is a little artificial and foreign to the real nature of the psyche, of which it is at most but the surface film. We may go one step further and, basing on the interpretation of myth, especially that of the Freudian school, and other activities of primitive man, venture the hypothesis, as some of his adherents have done, that the psyche of primitive man was characterized more completely even than ours by such loose associative activity; consciousness as we know it is then but a comparatively recent development and cannot yet very much affect the parts underneath. The soul, like the dream, has a "latent" as well as a "manifest" content, and it is through the former alone that the latter may be read.

Bibliography

1. Abraham, Karl. Die Stellung der Verwandtenehe in der Psychologie der Neurosen. Jahrbuch f. Psychoanal. u. Psychopath. Forsch., B. 1, H. 1, pp. 110-118.
2. —— —— Traum und Mythus. Eine Studie zur Völkerpsychologie. Schriften zur angewandte Seelenkunde, pt. 4. Leipzig, 1909. 74 p.
3. Aschaffenburg, Gustav. Experimentelle Studien ueber Association. Kræpelins Psy. Arb., B. 1, 1899, pp. 209-300; B. 2, 1900, pp. 1-84; B. 4, 1902, pp. 235-375.
4. Bawden, H. A study of lapses. Psy. Rev., Mon. Supp., v. 3, no. 4, 1900. 122 p.
5. Binet, A. La fétichisme dans l'amour. Rev. Phil., v. 24, 1887, pp. 142-167, pp. 252-274.
6. Binschwanger, L. Versuch einer Hysterieanalyse. Jahrbuch f. Psychoanal. u. Psychopath. Forsch., 1909, v. 1, pp. 174-356.
7. Bleuler, E. Bewusstsein und Assoziation. Diagnostische Assoziationsstudien, Leipzig, 1906, Beitrag 5, pp. 229-257.
8. Breuer, J. Beobachtung I. Frl. Anna O. Studien ueber Hysterie. Wien, 1895. 269 p.
9. Burnham, W. H. Retroactive Amnesia. *Am. Jour. Psy.*, 1903, v. 14, pp. 382-396.
10. Calkins, M. W. Statistics of Dreams. *Am. Jour. Psy.*, v. 5, 1893, pp. 311-342.
11. Calkins, M. W., with Wead, S. C., and Hallom, F. A Study of the Dream Consciousness. *Am. Jour. Psy.*, v. 7, 1896, pp. 405-411.
12. Carpenter, W. B. Principles of Mental Physiology. New York, Appleton, 1890. 737 p.
13. Claperède, Éd. L'Association des Ideés. Paris, 1903. 426 p.
14. Cordes, G. Experimentelle Untersuchungen ueber Assoziation. Phil. Stud. B. 17, 1901, pp. 30-77.
15. Delage, Y. Essai sur la theorie des rêves. Rev. Sci., v. 48, 1891, pp. 40-48.
16. Douse, T. On some minor psychological interferences. Mind, N. S., v. 9, 1900, pp. 85-93.
17. Ebert, E., and Meumann, E. Ueber einige Grundfragen der Psychologie der Uebungsphänomene im Bereiche des Gedächtnisses. Arch. f. d. gesammte Psy., 1905, B. 4, pp. 1-232.
18. Ellis, Havelock. The stuff that dreams are made of. Pop. Sci. Monthly, 1899, v. 54, pp. 719-735.
19. Ferenczi, S. The psychological analysis of dreams. *Am. Jour. Psy.*, v. 21, 1910, pp. 309-328.
20. Flournoy, Theo. Des phenomènes de synopsie. Paris, 1893. 259 p.
21. Foucault, Marcel. Le rêve. Études et observations. Paris, 1906. 304 p.
22. Freud, Sigm. Drei Abhandlungen zur Sexualtheorie. Leipzig, 1905. 83 p.
23. —— —— Die Abwehr-Neurosenpsychosen. Neurol. Centralblatt, 1894, n. 10, pp. 362-364; n. 11, pp. 402-409.
24. —— —— Allgemeine ueber den Hysterischen Anfall. Zeit. f. Psychother. u. Med. Psy., v. 1, 1909.
25. —— —— Analyse der Phobie einer fünfjährigen Knaben. Jahrbuch f. Psychoanal. u. Psychopath. Forsch. v. 1, 1909, pp. 1-109.
26. —— —— Bruchstück einer Hysterieanalyse. Monatsheft. f. Psychiatrie u. Neurologie, v. 18, 1905, pp. 285-308, pp. 408-466

27. FREUD, SIGM. Elisabeth v. R. Studien ueber Hysterie, Wien, 1895. 269 p.
28. —— —— Bemerkungen ueber einen Fall von Zwangsneurose, Jahrbuch f. Psychoanal. u. Psychopath. Forsch., v. 1, 1909. pp. 357-421.
29. —— —— Ueber Infantile Sexualtheorien. Sex. Prob., v. 4, 1908, pp. 763-779.
30. —— —— Meine Ansichten ueber die Rolle der Sexualität in der Aetiologie der Neurosen. In Loewenfeld, Sexualleben und Nervenleiden, 4th ed., 1906, pp. 242-255.
31. —— —— Zur Psychopathologie des Alltagslebens. 2d ed. Berlin, 1907. 132 p.
32. —— —— The origin and development of psychoanalysis. *Am. Jour. Psy.*, v. 21, 1910, pp. 181-218.
33. —— —— Die Traumdeutung. 2d ed., Wien, 1909. 389 p.
33a. —— —— Der Wahn und die Träume in W. Jensens "Gradiva." Schriften zur angewandten Seelenkunde, Iter Theil Leipzig, 1908. 81 p.
34. —— —— Der Witz und seine Beziehung zum Unbewussten. Wien, 1905. 205 p.
35. FÜRST, EMMA. Statistische Untersuchungen ueber Wortassoziationen und ueber familiäre Uebereinstimmung im Reaktionstypus bei Ungebildeten. Jour. f. Psy. u. Neurol., v. 9, 1907, pp. 243-278.
35a. HARTMANN, EDWARD V. Philosophie des Unbewussten. Berlin, 1873. 847 p.
36. HERBART, JOHANN. A text-book in Psychology. Eng. tr. by M. K. Smith. New York, Appleton, 1894. 200 p.
37. HOWE, H. C. Mediate association. *Am. Jour. Psy.*, v. 6, 1895, pp. 239-241.
38. JANET, PIERRE. L'Automatisme psychologique. Paris, 1899. 490 p.
39. —— ——. The major symptoms of hysteria. New York, Macmillan, 1907. 545 p.
40. —— ——. Les névroses. Paris, 1909, 397 p.
41. —— ——. Contribution to a symposium on the subconscious. Jour. Ab. Psy., v. 2, 1907-8, pp. 58-67.
42. JASTROW, J. The status of the subconscious. *Am. Jour. Psy.*, v. 14, 1903, pp. 79-89.
43. —— ——. The subcouscious. Boston, 1906, 549 p.
44. —— ——. Contribution to a symposium on the subconscious. Jour. Ab. Psy., v. 2, 1907-8, pp. 37-43.
45. JEWELL, J. The psychology of dreams. *Am. Jour. Psy.*, v. 16, 1905, pp. 1-34.
46. JONES, E. Freud's theory of dreams. *Am. Jour. Psy.*, v. 21, 1910, pp. 283-308.
47. —— ——. Rationalisation in everyday life. Jour. Ab. Psy., v, 3, 1908-9, pp. 161-169.
48. JUNG, C. G. The association method. *Am. Jour. Psy.*, v. 21, 1910, pp. 219-269.
49. —— ——. Assoziation Traum und Hysterische Symptom. Jour. f. Psy. u. Neurol. v. 8, 1906-7, pp, 25-60.
50. —— ——. Der Bedeutung des Vaters fur das Schicksal des Einzelnen. Jahrbuch f. Psychoanal. u. Psychopath. Forsch., 1909, v. 1, pp. 155-173.
51. —— ——and RIKLIN, FR. Experimentelle Untersuchungen ueber Assoziationen Gesunder. Diag. Assoziationstud. Leipzig, 1906, Beitrag, 1, pp. 7-145.

52. JUNG, C. G. Der Inhalt der Psychose. Schriften zur angewandte Seelenkunde, pt. 3. Leipzig, 1908, 26 p.
53. ——— ———. Psychoanalyse und Assoziationsexperiment. Diag. Assoziationsstud., Leipzig, 1906. Beitrag 6, pp. 258-281.
54. ——— ———. The psychology of dementia præcox. Eng. tr. by Peterson and Brill. New York, Journal of Mental and Nervous Diseases Pub. Co., 1909. 153 p.
54a. LADD, G. T. Contribution to the psychology of visual dreams. Mind, N. S., 1892, v. 1, pp. 299-304.
55. LEIBNITZ, GOTTFRIED. New essays concerning human understanding. Eng. tr. by A. G. Langley. New York, Macmillan, 1896. 861 p.
56. LIPPS, TH. Grundtatsachen des Seelenslebens. Bonn, 1883. 709 p.
57. MANACÉÏNE, M. DE. Sleep, its psychology, pathology, hygiene and psychology. London, 1897. 341 p.
59. MAURY, A. Le sommeil et les rêves. Paris, 1862. 426 p.
58a. MEISL, A. Die Érfahrungen der Pawlowschen Schule ueber den Thätigkeit der Speicheldrüsen und deren Psychologie. Jour. f. Psy. u. Neurol., v. 6, 1905-6, pp. 192-203.
59. MERINGER, R., and MAYER, K. Versprechen und Verlesen. Stuttgart, 1895. 204 p.
MEYER, SEMI. Zur Traumproblem. Zeit. f. Psy. u. Phys. d. Sinnesorgan. v. 53, 1909, pp. 206-224.
60 MOURLY, VOLD, J. Einige Experimente ueber Gesichtsbilder im Traum. Zeit. f. Psy. u. Phys. d. Sinnesorgan., 1896, v. 13, pp. 66-74.
61. MÜLLER, G., and PILZECKER, A. Experimentelle Beiträge zur Lehre vom Gedächtnisses. Zeit. f. Psy. u. Phys. d. Sinnesorgan. Ergänzungsband, 1900, v. 1, 300 p.
62. MÜNSTERBERG, H. Beiträge zur experimentelle Psychologie. Frieburg, 1889-1893. B. 1, pp. 64-188.
63. ——— ———. Contribution to a symposium on the subconscious. Jour. Ab. Psy., v. 2, 1907-8. pp. 25-33.
64. MYERS, F. W. H. Human personality and its survival of bodily death. New York, 1903. 2 vols.
65. NELSON, J. A study of dreams. *Am. Jour. Psy.*, 1888, v. 1, pp. 367-401.
66. OFFNER, MAX. Das Gedächtnis. Berlin, 1909. 238 p.
68. PEILLAUBE, E. L'Organisation de la memoire; Chap. 4. Rev. de Phil., v. 13, 1908. pp. 382-409.
69. PIERCE, A. H. An appeal from the prevailing doctrine of a detached subconscious. In Studies in Phil. and Psy., Boston, 1906. pp. 315-349.
70. PRINCE, MORTON. The unconscious. Jour. Ab. Psy., v. 3, 1908-9. pp. 261-297; pp. 335-353; pp. 391-426.
71. RANK, OTTO. Der Mythus von der Geburt des Helden. Schriften zur angewandte Seelenkunde, pt. 5, 1907. 93 p.
72. RIBOT, TH. Les maladies de la personnalité. Paris, 1888. 174 p.
73. ——— ———. Contribution to a symposium on the subconscious. Jour. Ab. Psy., v. 2, 1907-8. pp. 33-37.
74. RIKLIN, FRANZ. Wunscherfüllung und Symbolik im Marchen. Schriften zur angewandte Seelenkunde, pt. 2, 1908. 96 p.
75. DE SANCTIS, SANCTE. Die Traüme. Ger. tr. by O. Schmidt. Halle, 1901, 256 p.
76. SCOTT, COLIN. Sex and art. *Am. Jour. Psy.*, 1896, v. 7, pp. 153-226.
77. SCRIPTURE, E. Ueber den Associativen Verlauf der Vorstellungen. Phil. Stud., 1892, B. 7, pp. 50-147.

78. SIDIS, BORIS. The psychology of suggestion. New York, Appleton, 1898. 379 p.
79. —— ——. Psychopathological researches. New York, 1902. 329 p.
80. SOLLIER, P. La probleme de la memoire. Paris, 1900.
81. SPITTA, H. Die Schlaf und Traumzustände der Menschlichen Seele. Tuebingen, 1882. 420 p.
82. TISSIÉ, P. Les rêves. Physiologie et pathologie. Paris, 1890. 214 p.
83. TITCHENER, E. B. Taste dreams. *Am. Jour. Psy.*, v. 6, 1895. pp. 505-509.
84. VASCHIDE, N. Compte rendu à l'academie des sciences, 1899. pp. 183-186.
85. WELLS, LYMAN. Linguistic lapses. Repriut from Archives of Phil. Psy. and Sci. Meth., No. 6. New York, 1906. 110 p.
86. WUNDT, WILHELM. Grundzüge der physiologische Psychologie. 5th ed. Leipzig, 1903, 3 vols.
87. —— ——. Sind die Mittelglieder einer mittelbaren Assoziation bewusst oder unbewusst? Phil. Stud., v. 10, 1894. pp. 326-328.

A CHILD'S VOCABULARY AND ITS DEVELOPMENT

By JOHN R. PELSMA, Ph. M., University of Chicago

OUTLINE

A. Vocabulary
I. Biographical 330
1. Parentage
2. Association
3. Training
4. Biological data
II. Method of securing data 331
1. Daily conversation for three weeks
2. Questions framed to bring out known words
3. Naming objects
4. Monologue conversations
5. In fourth year child aided directly
III. Detailed vocabulary at the end of the first, second, third, and fourth years 334
IV. Tables 344
1. Per cent of nouns, verbs, etc., in "E's" vocabulary
2. Comparative list of vocabularies
3. Summary and averages
V. Color vocabulary 346
VI. Number vocabulary 348
B. Development
I. Origin 349
1. Theories advanced and corroborated from observation of "E"
II. Growth 350
1. Stages of growth
a. Reflex
b. Cry and gesture
c. Babbling
d. Imitation
e. Plateau
f. Expression
2. Method of growth
a. Reflex expression
b. Spontaneous emotional expression
c. Volitional expression
d. Imitation
e. Associative-reproduction
f. Invention
(1) From adults but get wrong form
(2) Proper words but wrong application
(3) Onomatopoetic sounds
(4) Onomatopoetic sounds applied to other objects
(5) Ejaculations
(6) Construction from "lol" words
(7) Combinations
(8) Formation of *regular* variants

B. Development
II. Growth
3. Systematic classification of progress made in different parts of speech
a. Statement
b. Table
III. Pronunciation 361
1. Indistinct articulation
a. Undeveloped speech organs
b. Imperfect perception
c. Lack of memory
d. Imperfect example
e. Difficult combination
2. Development of correct pronunciation
IV. Sentence formation 364
1. Stages
2. Methods
V. Word-content 366
Conclusion 367

Introduction

The human race has made many inventions enabling it more perfectly to adapt itself to its environment. The greatest of all is Language. Language has been the open sesame to progress. Written language represents in a condensed form the experiences and aspirations of all races. The thought and mental development of a people are limited by the number of words in its vocabulary and expressive gestures at its command. Accuracy of thought is in turn dependent on inflections and shades of meaning. Biologists affirm that ontogeny repeats phylogeny; in other words, the individual recapitulates the race. Though this theory can be accepted only with considerable modifications, philologists have frequently in their search for the genesis of speech turned to the babbling and prattling of the infant, in spite of the assertion of Max Müller that he "feared it useless to watch the first stammering of children." There is a striking analogy between the development of speech and general intelligence in the human race and the child. From careful study of the ontogeny of speech in the infant, hypotheses have been deduced regarding phylogenetic origin of language (Darwin, Romanes, Beckman, Chamberlain, and many others). While educational psychology treats the development of the child between the ages of six and sixteen (Judd), a systematic study of the child before this age is of the utmost value to scientific education as well as of interest to philologists (Hall).

Many children's vocabularies have been recorded, but nearly all of them are individual cases. Mrs. Hall (10) and Mr. Mickens (20) alone have published records of any extended attempt to note the progress in word forming processes in the same child for consecutive periods. Unfortunately their work

was interrupted when the children were seventeen months and twenty-seven months old, respectively. Prof. H. N. Gale (7) has also given us the result of a similar study covering the period between the second and third years of the child's life. Meumann (41) states that this study should continue until the fifth or sixth year, as the later years throw much light on the former. This article will submit a few facts concerning a child's vocabulary and a brief analysis of its development from birth until four years of age. Systematized data are yet too meager for conclusions which are entirely trustworthy. When more similar material has been gathered some future scientist may formulate general principles which will guide the investigator in further research which will lead to a further discovery and unification of general laws that can ultimately be turned to practical account by the educator. Facts of every kind in regard to development of intelligence in children, including their progress in language, are important, but in the earlier stages of the investigation the common and ordinary facts rather than the unusual and extraordinary are the most valuable (Kirkpatrick (15).

A. Vocabulary

1. Biographical. Elizabeth Allegra Pelsma was born July 4, 1905, at Nappanee, Ind. After living here one and one-half years she was taken to Reno, Nev. Remaining there one year, she was returned to Indiana. Her second summer, and a few odds weeks at other times, were spent on a farm, at the home of her maternal grand-parents in Northern Michigan. The six months prior to her fourth birthday were spent in Chicago. She has, therefore, had an opportunity to familiarize herself with the vocabulary of both city and country, as well as different sections of the country.

Her father is a teacher. Her mother is a high school graduate. Her father's nationality is Dutch. Her mother's, French and Scotch-Irish and German. "E" has, in the main, inherited the physique and temperament of her father.

She has been living with her parents continually, excepting a few days while visiting alone with her aunt. Her associates have been mainly adults. She has had little opportunity to play with children. She did not attend kindergarten until after she was four years old; has gone to Sunday School only a few times, and has had no opportunity to have a "chum" of near her own age, except for a few months. She has had no special instructions; cannot read one word, manifested no desire to read up to her fourth birthday; and has been given information only when she has demanded it, excepting such instructions as every American child has a right to expect from

his parents and usually receives. Her questions have been answered when they were asked for the purpose of information, but were decidedly discouraged when asked for the mere purpose of asking questions. Such colloquy as the following has always been discouraged: "What are you going to do with that stick?" "Put it in the stove." "What are you putting it in the stove for?" "To burn." "What do you want to burn it for?" "To make heat." "What do you want to make heat for?" etc.

"E" has been permitted to grow up and live as "naturally" as possible. She has been permitted to have her own way much of the time. Absolutely no attempt has been made for systematic training of her intellect or emotions, as advocated by some educators (Sanford Bell). She has been permitted to follow the example of Rousseau's "Emile" whenever and wherever possible. When she has asked the name of an object or a process, she has been informed and the process explained in such language as she was able to comprehend. This was not done with a view of increasing her vocabulary but to acquaint her concerning her environment, and encourage that innate curiosity, without which development would be impossible. Her environment has been made as congenial and varied as circumstances permitted, and was deemed practicable. As she is the only child in the family, she is compelled to play much alone. Her mother has been her constant companion day and night. Her association with her father and other adults has been unusually limited. Her father has been with her less than the average American father is with his child. During the first four years of her life her father has been obliged to be absent from home about ten out of the forty-eight months, or about one-fifth of the time.

Biologically "E" may be termed a perfect child. She has always been strong, robust, and healthy; is symmetrically formed and developed. She has been the personification of health excepting a slight attack of lung fever in the fall of 1907 and a few days of illness incident to childhood. Her weight and height is as follows:

	At birth	6 mo.	1 yr.	2 yrs.	3 yrs.	4 yrs.
Weight lbs.	9.2	17.1	23.8	28.1	31.5	33.2
Height in.	21.0	26.6	29.7	35.2	38.1	40.6

II. Method of Securing Data

Though no attempt was made to increase "E's" vocabulary faster than natural contingencies demanded, a rigorous attempt, however, was made to secure as far as possible all the words at her command during the special period of observation.

The ten words in her vocabulary when she was twelve months old were secured without much trouble. To procure the vocabulary at the end of the second, third, and fourth years, demanded more skill and new methods. Three weeks prior to her 2d, 3d, and 4th birthdays, recording began and was continued uninterruptedly until her natal day. The plans were as follows: A tablet containing over twenty-six pages was obtained, and each page lettered alphabetically. On each page vertical columns were drawn corresponding to the number of the parts of speech. In this tablet all words, as soon as secured, were written on the appropriate page and in the proper column. Pieces of blank paper were tacked on the wall in a number of rooms, and a pencil fastened near by. On them her mother jotted such words as were used by "E" in the absence of her father. With this co-operation of her mother a great many words were secured which would otherwise have been missed.

In all five distinct methods were used to secure the data: (1) Daily conversations with the child during the three weeks prior to her birthday. Most of the words were secured in this way. The child was very talkative and with a little encouragement would talk about her experiences of the day and of her desires for the morrow. (2) When it was believed that she knew the name of an object, action, attribute, or relation, and the word had not appeared in the conversation mentioned in (1), questions were framed to bring out the desired word in her answer. For example: Believing that she knew the word stove-poker, she was asked, "What does papa use to stir the fire?" She said, "shovel." "No, something long and round." She answered "poker." "How did the horses get across the water when you were riding with grandpa?" "They walked." "Did they walk in the water and get their feet wet?" "No, they walked on the *bridge*." (3) The direct naming of an object or an action. She would be shown a familiar object and asked to name it. The question usually assumed this form, "What is this?" If she knew she would name it. This method has been objected to by a few writers on children's vocabularies but the writer sees no reason why it is not legitimate. The child has the name of the object in his vocabulary and the reason it is not used in his ordinary conversation is because there has been no occasion. (4) The child at three years of age was frequently overheard to carry on an imaginary conversation with her dolls or playmates. These words were readily recorded. (5) In her fourth year "E" was old enough to comprehend the purpose of being daily watched and followed with tablet and pencil. In answer to her inquiry she was told that papa wanted to write down all the words she knew. She

took considerable interest in the proceeding and seemed proud that she knew so many words. Frequently she would come up to her papa and say: "I know ———, have you that written down?" "U——— is one of my words; write that down." She seemed to delight in this and was very painstaking in having all her words written down in that tablet. This direct aid was of great importance in securing her vocabulary. Miss Mateer (19) objects to this method for the reason that the child may become self-conscious and refuse to talk, etc. This might be true with some children, but not with "E," and it is very doubtful if there are very many children who would become too self-conscious to express themselves naturally, they might with strangers, but not with those whom they were well acquainted with. Miss Shinn (49) corroborates this view.

The following tables claim no originality as to arrangement. The plan of Holden (11) has been deemed the most complete and practicable of any yet published, with the exception of Mrs. Hall's (15). However, Mrs. Hall's method contains phases which was not thought advisable to emphasize in this paper.

Writers are far from agreeing as to what should be included in a vocabulary such as is here recorded. Some would include proper names with common nouns. (Whipple (32), Moore (21), Mateer (19).) Others would include inflected forms of verbs and adjectives (Whipple (32), Tracy (51)). Until an agreement is reached as to what words shall be included in a standard vocabulary, averages and comparative tables are of little value. In "E's" third year vocabulary, proper nouns constituted 7% of her nouns; and in her fourth year, 10%.

The following principles were observed in recording this vocabulary. Proper nouns are excluded. Present tense only of verbs when present tense was used by the child. No participial forms whatever, nor other inflected endings or grammatical variants. Articles have been included with adjectival forms. Singular number of nouns used in all cases when both singular and plural forms were known; but where only the plural form had been used, that form was recorded. Mr. Whipple's contention that every form should be included (excepting plurals) is more psychological than grammatical. All agree that "tall" and "taller" are two distinct conceptions in the child's mind, but how about *goose* and *geese*, or *dog* and *dogs?* Mr. Whipple has excluded plurals on the same principle that he has included *am* and *was*—a psychological rather than a grammatical basis. This exclusion does not seem consistent nor is this principle of classification practicable. It is true that the child sees no philological connection between

tall and *taller* at two years of age, but how can it be told just when he does? Neither has the child but *one* concept for *dog* and *dogs*. They, too, are "distinct acquisitions" as well as *tall* and *taller*.

The only digression found in the following vocabularies, from the principle of reducing the number of words to a minimum, is in including all forms of the pronouns. No apology is made for doing this. Nearly all writers have done so, besides they are comparatively few, constituting in the fourth year less than two per cent. of the total number of words. Again, grammatically, parts of speech are determined by the use of the word in the sentence. No word has any part of speech, intrinsically; only when it becomes part of speech, as when used in a sentence. Therefore, the words as recorded have been given a substantive, verbial, or adjectival classification based on the manner and form as they were used by the child. "My *below* lip hurts." "Won't you *hatchet* this?" Here "below" has an adjectival form and "hatchet" is used as a verb—and both have been so classified. Great deviations from the common usage have been italicized. Invented words and others not sanctioned by the ordinary dictionary have been placed in quotation marks. Compound words have been freely inserted when they were so expressed by the child. Frequently it was difficult to determine whether a word should be classified as a compound noun or as an adjective and a noun. Example, gasoline-stove, gasoline-can, etc. The word gasoline might properly be called an adjective, and stove, cow, etc., used as separate nouns. Such expressions were usually classified as compound nouns unless the adjectival form was frequently applied to unrelated objects.

III. Detailed Vocabularies

Age 12 months.

B. Nouns—Baby.
D. Nouns—Dada (daddy), dog.
Adverbs—Down.
G. Verbs—Go.
I. Nouns—"I" (water. *A few months later this was changed to "iyah."*
K. Nouns—Kitty.
M. Nouns—Mama, man.
U. Adverbs—Uppe (up).

None of the above words were joined to form what is usually called a grammatical sentence, though each expressed a complete thought. (See IV under B.)

III. Detailed Vocabularies

Age 24 months.

A. Nouns—Alarm-clock, alligator, apple, apron, arm, ashes, aunt.
Verbs—Am, ask.
Adjectives—All, any.
Adverbs—Almost, along, after, away.
Conjunctions—And.

B. Nouns—Baby, back, bacon, ball, banana, bank, barn, barrel, basket, bath, beans, bed, belt, bird, block, bonnet, book, bookcase, bottle, box, bracelet, bread, breakfast, bridge, broom, buggy, butter, button.
Verbs—Bite, break, bring, brush, build, bump, burn, button.
Adjectives—Bad, big, blue, both.
Adverbs—Back, behind, beside, bye.
Interjections—Boo.

C. Nouns—Cabbage, cap, cape, calf, can, candy, carpet, cart, cat, catalogue, chair, chicken, cherries, church, clock, closet, clothes, coal, coat, cocoa, comb, cookies, cream, cord, cow, cupboard.
Verbs—Can, can't, came, clean, carry, catch, cough, count, cry, cut.

C. Adjectives—Clean.
Adverbs—Careful.

D. Nouns—Dad, daddy, dimple, dinner, dish, dog, dollie, door, drink.
Verbs—Darn, dip, do, dress, drink, drop.
Adjectives—Dirty, dry.
Adverbs—Down.

E. Nouns—Ear, "eats" (raisins), egg, eye.
Verbs—Eat.
Adjectives—Empty.

F. Nouns—Face, fan, fence, finger, finger-nail, fire, floor, flour, flower, fly, foot, fork.
Verbs—Fan, feed, feel, fix, fly.
Adjectives—Fat, flat, funny.

G. Nouns—Garden, gate, girl, glass, go-cart, grandma, grandpa, grass.
Verbs—Get, give, go.
Adjectives—Good, green.

H. Nouns—Hair, hammer, hand, handkerchief, handle, hat, heel, home, horse.
Verbs—Hurry, hurt.
Adjectives—Hard, heavy.
Adverbs—Here.
Pronouns—He, him.
Interjections—Hello.

I. Nouns—Ice, ink.
Verbs—Is, isn't, *itch* (scratched).
Adverbs—In.
Pronouns—I, it.

J. Nouns—Jelly, Jumper.
Verbs—Jump.

K. Nouns—Key, kiss, kitty, knife.
Verbs—Kick, kiss.

L. Nouns—Lamp, lap, leaf, leg, lemon, letter.
Verbs—Let, lift, look, lose.
Adjectives—Little, long.

M. Nouns—Mail, mamma, man, meat, medicine, milk, milkman, moon, mother, mouse, mouth, mud.
Verbs—Make, may.

M. Pronouns—Me, mine, my.
N. Nouns—Nail, name, neck, needle, night, "nighty," nose.
Adjectives—New, nice.
Adverbs—No, now.
O. Nouns—Onion, orange.
Verbs—Open.
Adjectives—Old, one, other.
Adverbs—Off, out, over.
Prepositions—Of, on, over.
Interjections—Oh, öö, ouch.
P. Nouns—Pail, pan, pancake, papa, paper, patch, pan, petticoat, pie, pig, pillow, pin, plate, pop-corn, postage-stamp, potatoes (padils), pump.
Verbs—Paint, pinch, pound, pull, push, put.
Adjectives—Pretty.
Q. Nouns—Quilt (twilt).
Verbs—Quit (twit).
R. Nouns—Rain, rake, rest, ribbon, robe, rocking-chair, rolling-pin.
Verbs—Rake, ride, ring, roll.
Adjectives—Red.
S. Nouns—Salt, sand, saucer, saw, school, sewing-table, shirt, shoes, side, sister, sitting-room, "skeeter," skin, snow, soap, spoon, steps, stockings, stove, strap, straw, string, supper, swing.
Verbs—Saw, scratch, see, sew, sing, sit, sleep, smell, sneeze.
Adjectives—Sick, sleepy.
Interjections—Shoo.
T. Nouns—Table, table-cloth, tail, teeth, thing, thread, throat, tin-cup, titty, toast, toes, tongue, tooth-picks, top, town, train, tub.
Verbs—Tack, take, talk, tell, tickle, tie, tip, try, turn.
Adjectives—That, the, this, tiny, tired, two.
Adverbs—There, then.
Prepositions—Through, to.
U. Nouns—Union-suit, up-stairs.
Verbs—Unbutton, "unlocken" (unlocked).
Adverbs—Up.
V. Nouns—Vessel (bettaw).
W. Nouns—Wash-board, watch, water (ä-ja), whip, wood.
Verbs—Walk, wash, wear, wet, whip, wipe, wrap.
Adjectives—Wet, white.
Adverbs—When.
Prepositions—With.
X.
Y. Adjectives—Yellow.
Pronouns—You.
Z.

Age 36 months.

A. Nouns—Alarm-clock, alligator, apple, apron, arm, ashes, aunt, automobile, ax.
Verbs—Am, aren't, ask.
Adjectives—Afraid, all, any.
Adverbs—After, almost, along, away.
Conjunctions—And.
B. Nouns—Baby, back, bacon, ball, banana, bank, barrel, barn, basket, bath, beans, bed, bell, belt, berries, bib, bicycle, bird, bite, black-berries, blanket, black, blood, board, body, bone, bonnet, book, book-case, bottle, bowl, box, boy, bracelet, braid, bread, breakfast, breakfast-food, brick, bridge, broom, brush, bucket, bug, buggy, bump, butter, button.

B. Verbs—Bake, bathe, bend, bite, bleed, blow, boil, bother, break, bring, brush, build, bump, burn, burst, button, buy.
Adjectives—Bad, bare-foot, better, big, bitter, black, blue, both, brown, busy.
Adverbs—Back, before, behind, beside, bye.
Prepositions—By.
Interjections—Boo.

C. Nouns—Cabbage, cake, calf, can, candy, cap, cape, car, card, carpet, cart, cat, catalogue, chair, chalk, cherries, chest, chicken, church, churn, cinnamon, o'clock, closet, clothes, clothes-line, clothes-pin, clothes-rack, coal, coal-pail, coat, cocoa, coffee, cold-cream, collar, comb, comforter, cookies, corn, corner, corset, couch, cough, crackers, cream, crock, curtain, cuff, cuff-button, cup, cupboard.
Verbs—Can, can't, care, carry, catch, chase, clean, climb, close, come, cough, count, cry, cut.
Adjectives—Clean, cold, cute.
Adverbs—Carefully.

D. Nouns—Dad, daddy, darling, daughter, dimple, dinner, dipper, dirt, dog, dollie, door, dress, drink, drum.

D. Verbs—Darn, die, dig, dip, do, don't, dress, drink, drive, drop, drum, dust.
Adjectives—Dark, dirty, dry.
Adverbs—Down.

E. Nouns—Ear, eating-apron, egg, elbow, end, envelope, eye, eyebrows.
Verbs—Eat, excuse.
Adjectives—Empty.

F. Nouns—Face, fan, feather, feather-duster, fence, finger, finger-nail, finger-stall, fire, fish, flag, floor, flour, flower, fly, foot, fork.
Verbs—Fall, fan, feed, feel, find, fix.
Adjectives—Fat, first, flat, four, fresh, full, funny.
Adverbs—Far, fast.

G. Nouns—Garden, gate, girl, glass, glasses (eye-glasses), go-cart, grandma, grandpa, grapes, grass, grater, ground.
Verbs—Get, give, go, grow, grunt, guess.
Adjectives—good, gray, green.
Adverbs—Good-night.

H. Nouns—Hair, hair-pin, hammer, hamper, hand, handkerchief, handle, hat, hatchet, hay, head, heel, hiccough, hobby-horse, hoe, home, horse, house.
Verbs—Have, hear, hit, hold, hug, hurry, hurry, hurt, hunt.
Adjectives—Hard, heavy, hot, hungry.
Adverbs—Here.
Pronouns—He, her, him, his.
Interjections—Ho, hough.

I. Nouns—Ice, ice-cream, ice-man, ice-wagon, ink, iron, itch.
Verbs—Iron, is, isn't.
Adverbs—Inside.
Prepositions—In.
Pronouns—I, it.

J. Nouns—Jelly, juice, jumper.
Verbs—Jump.

K. Nouns—Kettle, key, kiss, kitchen, kitty, knee, knife, knot.
Verbs—Kick, kiss, know.

L. Nouns—Lace, lady, lamp, lamp-chimney, lap, lard, leaf, leg, lemon, lemonade, letter, light, line, lip, looking-glass.
Verbs—Let, lift, light, like, "locken" (locked), look.
Adjectives—Last, light, little, long.

M. Nouns—Mail, mail-box, mail-man, mama, man, meat, medicine, milk, milk-man, mirror, monkey, moon, mouse, mouth, mouth-organ, mother, mud, mustache.
Verbs—Make, may, mix.
Pronouns—Me, mine, my.

N. Nouns—Nail, name, neck, necktie, needle, night, night-drawers, "nighty", noodles, nose.
Verbs—Nail.
Adjectives—New, nice.
Adverbs—Never, no, now.

O. Nouns—Oil, oil-can, oil-cloth, onion, orange, oven.
Verbs—Open.
Adjectives—Old, one, other.
Adverbs—Off, on, out, over.
Prepositions—Of, on, over.
Interjections—Oo, oh, oh-my, ouch.

P. Nouns—Pail, paint, paint-brush, pan, pan-cakes, pantry, pants, papa, paper, paste-board, patch, pattern, peanuts, pears, pen, pencil, penny, people, pepper, petticoat, piano, picture, pie,

P. Nouns— piece, pig, pig-pen, pillow, pin, pin-tray, pitcher, plant, plate, pocket, pocket-book, porch, post, postage-stamp, postal-card, powder, potatoes, pump, pusher, pussy.
Verbs—Paddle, paint, pat, pick, pin, pinch, plant, play, pound, pull, pump, push, put.
Adjectives—Pink, pretty.

Q. Nouns—Quilt.
Verbs—Quit.
Adverbs—Quiet.

R. Nouns—Rack, radish, rain, raisin, rake, raspberry, ribbon, ring, robe, rocking-chair, rolling-pin, rope, rubbers, rug.
Verbs—Rain, rake, rest, ride, roll, run.
Adjectives—Red, right.

S. Nouns—Sack, safety-pin, salt, sand, sandless, sand-pile, saucer, saw, school, scissors, screw, sewing, sewing-machine, sewing-machine-drawer, sewing-table, sheet, shirt, shirt-waist, shelf, shoe, shoe-string, shovel, side, side-walk, sister, sitting-room, skeeter, skillet, skin, skirt, sleeve, slipper, snow, soap, socks, soup, spade, splinter, spoon, star, starch, steps, stick, stockings, stone, stool, strap, stove, straw, street, street-car, string, sugar, supper, supporters, swing.
Verbs—Say, see, sew, scare, scratch, scour, shove, shut, sing, sit, sleep, sneeze, snow, smell, sort, stay, swing.
Adjectives—Sick, sleepy, some, sore, sorry, sour, sweet.
Interjections—Shoo.

T. Nouns—Table, table-cloth, tack, toil, tears, Teddy-bear, teeth, telescope, thing, thread, throat, thumb, tie, time, tin-cup, titty, toast, toes, toilet, tomatoes, tongue, tooth-picks, top, towl, town, toy, train, trunk, tub.
Verbs—Tack, talk, tear, tell, thank, throw, tickle, tie, try, turn.
Adjectives—That, the, this, three, tight, tiny, tired, two.
Adverbs—There, through, too.
Prepositions—Through, to.
Pronouns—Them, they.

U. Nouns—Umbrella, union-suits.
Verbs—Unbutton "unlocken."
Adverbs—Up, up-stairs.
Prepositions—Up.
Pronouns—Us.

V. Nouns—Vaseline, vessel, vinegar.
Adverbs—Very.

W. Nouns—Walk, watch, water, wash-board, wash-boiler, wash-tub, waist, way, wheel, wheel-barrow, whip, whistle, window, wood, writing-desk.
Verbs—Wait, walk, want, wash, watch, wear, wet, whip, wipe, wrap, write.
Adjectives—Well, white.
Adverbs—When.
Prepositions—With.

X.

Y. Adjectives—Yellow.
Pronouns—Your, yours.

Z.

Age 48 months.

A. Nouns—Afternoon, alligator, ankle, anybody, apple, apricot, apron, arm, aunt, automobile.
Verbs—Am, aren't, ask.
Adjectives—A, afraid, all, an, another, any, around, awful.

A. Adverbs—Afterwhile, again, alike, along, almost, alone, alright, anywhere, apart, around, away.
Prepositions—Across, after, at, around.
Conjunctions—And.
Interjections—Ah.

B. Nouns—Baa, baby, back, bacon, ball, bologna, banana, band, barn, barn-yard, barrel, basket, bath, bath-room, beads, beans, bed, bed-room, beetle, bench, bell, belt, belt-buckle, berry, berry-boxes, bib, bicycle, bird, birthday, bite, biter, black-berries, blanket, block, blood, blueing, boat, boat-rider, boards, body, boiler, bone, bonnet, book, book-case, bottle, bottom, bouncing-ball, box, boy, braid, bread, bread-dough, bread-pan, breakfast, breakfast-food, brick, bridge, broom, brother, brush, bucket, bug, buggy, bump, butter, butter-bowl, butterfly, button, button-hole, button-hook.
Verbs—Bake, bark, bathe, beat, behave, bend, bite, blow, boil, bother, born, break, bring, brush, build, burn, bust, button, buy.
Adjectives—Baby, bad, barefoot, better, big, bitter, black, blue, blue-eyed, both, bouncing, brown, bum, busy.
Adverbs—Back, backward, before, behind, besides, better, bye.
Prepositions—Behind, beside, by.
Conjunctions—But.
Interjections—Baa, bowwow.

C. Nouns—Cab, cabbage, cage, cake, calf, can, candy, cap, car, cart, carrot, cat, catalogue, catchup, card, cards, carpet, caster-oil, chain, chair, cheek, cheese, cherries, chest, chewing-gum, chick, chicken, children, chimney, chin, chocolate, Christmas, church, churn, ceiling, cellar, cemetery, cigar-box, cinnamon, class, cloak, clock, closet, cloth, clothes, clothes-line, clothespin, cloud, coal, coal-oil, coat, cock-a-doodle-doo, cocoa, coffee, "coffee-churn," cold, collar, comb, comforter, conductor, cooky, cork, corn, corset, cough, cough-syrup, cousin, cover, cow, crack, cracker, cracker-jack, crayons, cream, cricket, crock, crust, cuff, cuff-button, cup, cup-board, "cup-egg," curtain.
Verbs—Call, can, can't, care, carry, catch, chase, churn, clean, clime, close, come, cough, count, cover, crack, crawl, cry, cut.
Adjectives—Careful, chocolate, chrome-yellow, clean, clear, close, cold, cute.
Adverbs—Clear, careful.

D. Nouns—Dad, daddy, dandelion, darning-cotton, daughter, dear, dentist, dime, dimple, dining-room, "dinky," dinner, dipper,

D. Nouns—Dirt, dish, dish-pan, dish-towel, doctor, dog, doggie, donkey, door, drawer, dream, dress, dresser, dressing, drink, drop, drum, duck, dust.
Verbs—Darn, dip, do, don't, draw, drink, dress, drop, dry, dust.
Adjectives—Dandy, dark, dark-blue, dark-brown, dead, dirty, done, dusty.
Adverbs—Down, down-stairs.

E. Nouns—Ear, eating-apron, edge, egg, egg-beater, elbow, elevator, elevated, end, engine, envelope, eraser, evening, everybody, everything, eye, eye-brows, eye-winker.
Verbs—Eat, empty, excuse.
Adjectives—Each, early, empty, every.
Adverbs—Early, easily, either, else.

F. Nouns—Face, face-powder, fan, feather, feather-duster, fence, finger, finger-nail, fire, fire-cracker, field, fish, flag, flat, floor, flour, flour-sifter, flower, fly, food, foot, forehead, fork, friend, frog, front, fudge, funeral.

F. Verbs—Fall, fan, faster, feed, feel, figure, find, finish, fix, fly, float, forget.
Adjectives—Fat, first, five, flat, four, four-year-old, fresh, funny, full.
Adverbs—Far, fast, first, forth.
Preposition—For.

G. Nouns—Garden, gasoline, gasoline-stove, gate, girl, glass, glasses, glue, gloves, go-cart, gold-fish, goose, grandma, grandpa, grapes, grater, groceries, ground.
Verbs—Get, giggle, give, go, grow, grunt, guess.
Adjectives—Gasoline, good, graham, gray, great, greasy, green.
Adverbs—Good, good-bye, good-night, great.
Interjections—Goodness' sake.

H. Nouns—Hair, hair-pin, hair-rat, hair-ribbon, half, hall, hall-way, hand, handkerchief, handle, hammer, hot, hatchet, hat-pin, head, hearse, heart, heel, hide-and-go-seek, hiccough, hickory-nut, high-chair, hive, hobby-horse, hoe, hole, home, honey, hood, hooks, horns, horsie, hubby, hydrant.
Verbs—Ha'n't, *hatchet*, have, hear, help, hide, hike, hit, hold, holler, hug, hunt, hurt, hurry, hustle.
Adjectives—Hard, heavy, high, hot, hungry.
Adverbs—Hardly, hear, how.
Pronouns—He, her, hers, him, his.
Interjections—Hello, hey, ho.

I. Nouns—Ice, ice-cream, ice-man, ice-wagon, ink, ink-bottle, iron, ironing-board, itch.
Verbs—Iron, is, isn't, itch.
Adverbs—Inside.
Pronouns—I, it.
Prepositions—In, into, inside.
Conjunctions—If.

J. Nouns—Jacket, jelly, joke, juice, jumper, jumping-jack.
Verbs—Jerk, jump.
Adverbs—Just.

K. Nouns—Kettle, key, kick, kids, kinkling, kiss, kitchen, kitchen-cabinet, kitty, knee, knife.
Verbs—Kick, kill, kiss, knock, know.
Adverbs—Kinda.

L. Nouns—Lace, lady, lake, lamp, lamp-chimney, lamp-lighter, lap, lard, laundry-bag, lawn-mower, leaf, leg, lemon, lemonade, letter, letters, library, light, lightning, line, lip, liver, load, loaf, lodge, lounge, lump, lunch.

L. Verbs—Lay, left, let, lick, lift, light, like, listen, lock, look, loose, love, lye.
Adjectives—Last, left, light, light-brown, little, long, loose, loud, low.
Adverbs—Late, like, lot.
Interjections—Loo-loo.

M. Nouns—Magazine, mail, mail-box, mail-man, mamma, man, marble, mark, match, meat, meat-saw, medicine, milk, milk-bottle, milk-man, milk-toast, milk-wagon, minute, mirror, mistake, mitten, mole, money, monkey, moon, moon-shine, morning, mosquito, mother, motor-man, mouse, mouth, moving-picture-show, mud, muff, muffler, mush, mustard.
Verbs—Make, march, mark, match, may, mean, mend, "mickeled" (mussed), might, milk, mind, miss, mix, move, must.
Adjectives—Mad, many, merry, middle, much.
Adverbs—More, most, much.

M. Pronouns—Me, mine, my, my-own, my-own-self, my-self.

N. Nouns—Nail, name, nap, napkin, neck, neck-tie, needle, newspaper, night, night-drawers, night-gown, "nighty," nobody, noise, noodles, nose, nothing, nurse, nuts.
Verbs—Nail, name, need, nurse.
Adjectives—Naughty, near, new, next, nice, no, none.
Adverbs—Nearly, never, no, now.

O. Nouns—Oil, oil-can, oil-cloth, olives, onions, orange, oven, oxen.
Verbs—Oil, open, order.
Adjectives—Old, one, orange, other.
Adverbs—Off, on, once, open, out, outside, over.
Pronouns—Ownself.
Prepositions—Of, on, out, over.
Interjections—Oh, ouch.

P. Nouns—Package, packer, pad, page, pail, paint, paint-brush, pan, pan-cakes, pantry, pants, papa, paper, paraffin, parasol, parlor, parrot, part, patch, peach, peanuts, peas, pen, pencil, penny, people, pepper, peppermint, period, petticoat, piano, pickle, picture, picture-book, pie, piece, pig, piggie, pile, pills, pillow, pimple, pin, pineapple, pin-tray, pitcher, place, plant, plate, "plate-egg," plum, pocket, pocket-book, poker, pop-corn, porch, postage-stamp, postal-card, posy, potato, potato-cakes, potato-masher, powder, prayer, price, prunes, pudding, pump, pumpkin, pusher, pussy.
Verbs—Paint, paddle, part, paste, pat, patch, pay, pick, pile, pin, pinch, plant, play, poke, pound, pull, pump, punch, push, put.
Adjectives—Plaid, pink, pretty, purple.
Adverbs—Perhaps, please.

Q. Nouns—Question, question-mark, quilt.
Verbs—Quit.
Adverbs—Quick, quiet.
Interjection—Quack.

R. Nouns—Rabbit, raddish, rag, rain, rain-bow, raisins, rake, range, rat, rat-trap, raveling, rest, ribbon, rice, ride, ring, robe, robin, rocking-chair, "rolabola," rolling-pin, rompers, roof, room, rooster, rope, rubbers, rug, ruler.
Verbs—Rain, raise, rake, read, remember, rest, ride, rock, roll, rub, run.
Adjectives—Ready, red, right, rough, round.
Adverbs—Right, (a)round.

S. Nouns—Sack, safety-pin, salt, salt-shaker, salve, sand, sandals, sand-pile, saucer, sausage, saw, saw-dust, scales, scare, school, scissors, screen, screen-door, scouring-soap, screw, screw-eye,

S. Nouns—screw-driver, seam, seat, seed, set, sewing, sewing-machine, sewing-machine-drawer, sewing-table, shadow, *shave* (lather), shawl, shears, sheep, sheet, shell, shirt, shirt-waist, shoe, shoe-string, shoot, short-cake, shot-gun, shovel, side, side-walk, sink, sister, skates, skillet, skin, skirt, sky, slap, sled, sleeve, slipper, smoke, snow, soap, soap-dish, soap-suds, socks, something, soup, space, spade, spare-ribs, spinning-top, splinter, spool, spoon, stairs, stair-way, stand, star, starch, station, step, steps, stem, stick, stocking, stomach, stomach-ache, stone, stool, stopper, store, store-room, story, story-book, strap, strawberries, street, street-car, string, stuff, suds, sugar, sugar-bowl, sugar-spoon, summer, sun, sun-shine, supper, supporters, sweet-heart, swing, syrup.

S. Verbs—Say, saw, scratch, see, send, set, shake, shall, shave, shine, shoot, shout, shove, shovel, show, shut, sing, sit, skate, slap, sleep, slide, slip, smell, smoke, sneeze, sort, sow, spank, speak, spell, spill, spin, spit, spoil, sprinkle, stand, starch, stay, stick, stir, stop, string, study, stumble, suck, swallow, sweat, swim, swing.

Adjectives—Sharp, short, sick, six, sleepy, slick, slow, snowy, soft, such, sweaty, sweet.

Adverbs—Some, sometimes, so, sore, sure.

Interjection—Shoo.

T. Nouns—Table, table-cloth, tack, tack-hammer, tail, talcum-powder, tape-line, tea, teacher, tears, tea-spoons, tea-towel, Teddy-bear, telephone, telescope, thimble, thing, thread, throat, thumb, thunder, ticket, ticket-puncher, tights, time, tin, tin-cup, tire, tissue-paper, titty, toast, to-day, tomatoes, to-morrow, toe, toe-nail, toilet, tongue, teeth, tooth-ache, tooth-brush, tooth-pick, top, towel, town, train, trap, trash, tree, trouble, trousers, trunk, tub, tuck, tumbler.

Verbs—Take, talk, taste, teach, tear, tease, telephone, tell, thank, throw, tickle, tie, touch, try, tumble, turn.

Adjectives—Tall, tan, that, the, these, thin, thirsty, this, three, tight, tiny, tired, toasted, to-morrow, two.

Adverbs—Then, there, through, till, to-day, together, to-morrow, too.

Pronouns—That, this, they, them.

Prepositions—Till, to.

Conjunctions—Than, then.

Interjections—There, toot-toot.

U. Nouns—Umbrella, uncle, union-suits.

Verbs—Unbutton, undress, unfasten, unlock, untie, use.

Adjectives—Ugly.

Adverbs—Up, upstairs.

Pronouns—Us.

Prepositions—Under.

V. Nouns—Vaseline, vessel, vest, vinegar.

Adverbs—Very.

W. Nouns—Wagon, waist, wall, wall-paper, walk, wart, wash-board, wash-boiler, wash-bowl, washing-day, wash-pan, wash-rag, wash-tub, watch, watch-chain, water, water-melon, water-pail, water-pitcher, wax, way, week, weenies, wheel, wheel-barrow, whip, whiskers, whopper, wig, wind, window, wings, "winkie," winter, wire, woman, wood, word, work, worker, wringer, wrist.

Verbs—Wait, wake, waked-up, walk, watch, water, want, wash, wear, wet, whip, whisper, whistle, wiggle, will, wipe, wire, wish, won't, wonder, work, would, wrap, wring, wrinkle, write.

Adjectives—Warm, well, wet, white, whole, wrinkled, writing, wrong.

W. Adverbs—Way, what, when, where.
Pronouns—Who.
Prepositions—With.
Interjection—Whoa.
X.
Y. Nouns—Yeast.
Adjectives—Yellow, yellow-ochre.
Adverbs—Yes, yesterday, yet.
Pronouns—You, yours, yourselves.
Z.

Proper nouns are not included with the rest of the vocabulary.

During the first year no proper names were spoken. The first proper name attempted was her own name, Elizabeth. This was first pronounced "Isbes," next "Isbe.," "Isbeth," "Lisbeth," and not until she was four years old was the name pronounced correctly.

During the three weeks preceding her second birthday she used the following words: Elizabeth, Net, Turner, Sis.—4 in all.

At her third birthday she used the following: Anna, Berry St., Claudie, Cloa, Clarence, College Ave., Mrs. Crowley, Dorothy, Earl, Effie, Ella, Floyd, Florence Hall, Mrs. Gardiner, Goshen, Greencastle, Harry, Herb, Mrs. Hill, John, Kermet, Lake City, Lena, Maude, Myrtle, Minnie, Pelsma, Mrs. Stephenson—28 in all.

At her fourth birthday the following proper names were used: Anna, Allegra, Bertha, Blanche, Bud, Chicago, Cloa, Carl, Claude, Mrs. Crawley; Dennis, Dorothy, Elizabeth, Ella, Emma, Eastern Star, Edward, Ethel, Floyd, Florence, Florence Hall, Friday, Fourth of July, George, Genevieve, Glen, God, Grace, Grand Rapids, Mrs. Gardiner, Greencastle, Hazel, Herb, Helen, Mrs. Hill, Indiana, Jackson Park, Jackson Ave., Jennie, Jesus, John, Katherine, Klass, Kermet, Kitty, Lake City, Laurence, Lincoln Park, Lord, Mary, May, Margaret, Masonic Lodge, Minnie, Maud, Monday, Mildred, Nellie, Noel, O'Conner, Raymond, Robinson, Rebecka Lodge, Saturday, Sunday, Mrs. Stephenson, Santa Claus, Thursday, Tuesday, Wednesday, Mrs. White, White City, Washington, Washington Park—78 words in all.

"E" also knew all the letters of the alphabet except Q, Y and Z. It was surprising how eagerly she sought to learn these arbitrary symbols. Attempts were made to teach her simple words, but she did not care to learn these, preferring the letters, and would insist continually that we tell her the name of a letter. She would spell out a word and then ask us to pronounce the word. She did not become interested in the words themselves until the last part of her third year. Technically speaking, the letters are the names of the symbols

they represent, and grammatically may be called nouns. This would increase her total vocabulary, including proper nouns, and the twenty-three letters of the alphabet, to 1,379 words. This total still seems low when compared with Whipple's three-year-old boy who had 1,771, Jegi's two-year-old boy with 1,227, or Humphrey's two-year-old boy with 1,121 words. But it must be remembered that they had exceptionally bright children, and also included in their tables some grammatical variants, *i. e.*, inflections as: go, going, gone; comparisons, as tall, taller, tallest, and all compounds.

IV. Tables

Table (1) shows a progressive summary which needs no comment.

Table (2) gives a detailed list of children's vocabularies up to four years of age which have been published. Seventy-two are included. Dr. Tracy (51) summarized the vocabularies of about 18 children. Prof. Whipple (32) adds about 18 to the list of Dr. Tracy. Table (2) gives the total numbers of words and parts of speech.

Table (3) presents a complete summary of twenty-six vocabularies classified by years, and sixty-eight by groups. Parts of speech and per cent. are given. Lists which were not complete in Table (2) have been excluded. An attempt has been made to include *all* vocabularies which were not questionable, not merely the greatest. Yet we fear that the average is still very high, as most of the records are of precocious children.

Gale (8) states that the vocabulary of the average two-year-old child is 700, and 1,400 at 2½ years. This is too high. Our table for 14 children at two years gives 518 words; and at three years only 1,209. This is still too high for the average three-year-old, for our average at four years is only 1,149. Insufficient data exist at present. We believe that when more data are accumulated that "E's" vocabulary will be found not far from that of the average American child; for "E" is in every way a child of only average ability. She was not like Jegi's child, who at two years of age had outgrown Mother Goose Rhymes! Such exceptional cases as the child of Dr. E. Gates (17), who at the age of 21 months knew 11,000 (?) words, are of little practical value to the educator. We need more data from *normal* children. Again, it will be found that 2,000 words is not far from the number of words at the command of the average six-year-old child—*i. e.*, at the time he enters school.

1. The following Table presents a progressive summary of "E's" vocabulary in number of words and in per cents.

Parts of speech	First year words	%	Second year words	%	Third year words	%	Fourth year words	%
Nouns	7	70	212	56.0	406	59.8	730	56.6
Verbs	1	10	88	23.3	147	21.4	265	20.7
Adjectives			37	9.9	65	9.8	135	10.6
Adverbs	2	20	21	5.6	31	4.6	86	6.8
Pronouns			8	2.7	14	2.0	23	1.9
Prepositions			6	1.6	9	1.2	19	1.6
Conjunctions			1	.3	1	.1	5	.5
Interjections			6	1.6	8	1.1	15	1.3
		100		100		100		100
Total	10		379		681		1,278	

2. COMPARATIVE TABLE

Classification into Parts of Speech

Authority	Ref.	Age of Child	Total No. of words	Nouns	Verbs	Adj.	Adv.	Pro.	Prep.	Conj.	Int.
Hall	10	10 mo. B	3	1	1	—	—	—	—	—	2
"	"	11 mo. B	12	9	1	—	—	—	—	—	2
"	"	12 mo. B	24	19	2	—	—	—	—	—	3
Moore	21	12 mo. B	6	6	—	—	—	—	—	—	—
Perez	44	12 mo. B	10	6	2	2	—	—	—	—	—
Tracy	51	12 mo.	10	6	—	2	2	—	—	—	—
"	"	12 mo. B	8	7	—	—	1	—	—	—	—
Pelsma	—	12 mo. G	10	7	1	—	2	—	—	—	
Mickens	20	12 mo. G	3	2	—	—	—	—	—	—	1
Hall	10	13 mo. B	38	30	3	1	—	—	—	—	4
"	"	14 mo. B	58	44	6	3	1	—	—	—	4
Mickens	20	14 mo. G	15	13	—	—	1	—	—	—	1
Hall	10	15 mo. B	106	84	8	7	3	—	—	—	4
Mickens	20	15 mo. G	27	21	—	3	2	—	—	—	1
Hall	10	16 mo. B	199	141	28	17	5	2	1	1	4
Mickens	20	16 mo. G	44	36	1	4	2	—	—	—	1
Jegi	13	16 mo. G	75	50	13	3	4	—	—	1	4
Hall	10	17 mo. B	232	156	37	20	5	3	5	1	5
Tracy	51	17 mo. G	35	22	4	2	4	—	—	—	3
Mickens	20	17 mo. G	77	66	4	4	2	—	—	—	1
Jegi (Cary)	13	18 mo. B	60	36	16	3	3	—	—	—	2
Watson	8	18 mo. G	74	57	3	6	2	—	—	—	6
Mickens	20	18 mo. G	116	97	9	7	2	—	—	—	1
Dewey	6	18 mo. G	144	76	41	2	9	9	—	—	7
"	"	19 mo. B	115	69	24	13	3	—	—	—	6
Mickens	20	19 mo. G	142	111	19	8	3	—	—	—	1
Tracy	51	19 mo. B	144	78	36	19	4	—	1	—	6
Mickens	20	20 mo. G	187	139	24	16	4	1	2	—	1
Tracy	51	21 mo. G	177	148	14	6	5	2	2	—	—
Mickens	20	21 mo. G	216	150	22	20	5	1	2	—	10
Tracy	51	22 mo. G	69	37	9	4	8	1	—	—	1

2. COMPARATIVE TABLE—*Continued*

Authority	Ref	Age of Child	Total No. of words	Nouns	Verbs	Adj.	Adv.	Pro.	Prep.	Conj.	Int.
Mickens	20	22 mo. G	281	185	49	27	11	2	4	1	2
Tracy	51	22 mo. G	27	16	3	3	2	—	—	—	3
Mickens	20	23 mo. G	352	226	70	31	15	3	4	1	2
Tracy	51	23 mo. G	136	95	16	12	7	3	—	1	2
Moore	21	2 yr. B	475	306	92	38	14	11	Miscel.		14
Holden	11	2 " G	483	285	107	34	29		"		28
"	"	2 " G	399	230	90	37	17		"		25
"	"	2 " B	173	113	30	13	6		"		11
Humphreys	12	2 " G	1121	592	282	113	56	35	28	6	9
Tracy	51	2 "	263	168	52	22	7	7	4	—	3
"	"	2 " B	139	95	21	6	4	1	—	—	12
"	"	2 " G	285	187	46	30	11	3	5	—	3
"	"	2 " G	36	16	7	4	3	3	—	—	3
Gale	7	2 " G	436	232	99	49	27	12	8	1	8
"	"	2 " B	115	69	17	17	8	—	2	1	1
"	"	2 " G	578	293	129	70	38	27	13	6	2
Jegi	13	2 " G	1227	727	238	139	54	21	24	4	20
Gale	7	2 " G	400	247	82	36	23	4	4	—	4
"	"	2 " B	729	417	171	68	36	10	9	—	17
"	"	2 " G	741	395	159	97	27	11	4	—	49
"	"	2 " G	783	555	103	70	27	12	4	—	12
Mickens	20	2 " G	427	256	94	40	24	6	4	1	2
Pelsma	—	2 " G	379	212	88	37	21	8	6	1	6
Mickens	20	25 mo. G	507	302	101	53	33	8	6	2	2
Tracy	51	25 mo. G	250	196	28	15	5	3	3	—	—
Mickens	20	26 mo. G	587	335	121	60	47	11	8	2	3
Tracy	51	27 mo. G	171	113	27	16	10	2	1	1	1
Mickens	20	27 mo. G	675	382	139	66	62	11	9	2	4
Tracy	51	28 mo. B	677	422	136	69	23	9	12	2	4
"	"	28 mo. G	451	287	89	29	19	13	6	1	7
"	"	30 mo. B	327	132	87	42	31	18	12	3	2
Watson	8	30 mo. B	480	257	124	50	21	10	10	6	2
Gale	8	30 mo. G	769	444	149	103	30	19	11	5	8
"	8	30 mo. B	1432	797	310	154	75	33	25	10	28
"	8	30 mo. G	1509	913	310	157	61	16	16	—	36
Salisbury	23	32 mo. G	642	350	150	60	32	24	17	4	5
Gale	7	3 yr. G	1176	675	238	143	53	33	17	7	10
Whipple	33	3 yr. B	1771	993	391	209	89	33	24	8	24
Pelsma	—	3 yr. G	681	406	147	65	31	14	9	1	8
Mateer	19	4 yr. B	1020	578	211	125	51	21	4	12	18
Pelsma	—	4 yr. G	1278	730	265	135	86	23	19	5	15

V. COLOR VOCABULARY

Sanford (24) and Wolf (36) state that the average educated adult uses only about 25 color terms; and many five-year-old children are limited to four or five colors. The average two-year-old child uses only one color term. Preyer (45) states that his child knew no color terms at twenty months, and only red, yellow, black, violet and brown at

3. SUMMARY

Years	No. of Children	Total No. of words	Nouns words	%	Verbs words	%	Adj. words	%	Adverbs words	%	Pronouns words	%	Prep. words	%	Conj. words	%	Int. words	%
I	6	68	51	75.0	5	7.4	4	5.8	5	7.4								
II	15	7,658	4,461	58.3	1,588	20.7	798	10.4	366	4.8	160	2.1	115	1.5	20	0.3	151	1.9
III	3	3,628	2,074	57.4	776	21.5	417	11.3	173	4.8	80	2.2	50	1.3	16	0.4	42	1.1
IV	2	2,298	1,308	56.9	476	20.7	260	11.3	137	6.0	44	1.9	23	1.0	17	0.7	33	1.5
0 to II	50	10,890	6,707	61.5	2,063	19.0	1,043	9.6	483	4.5	187	1.8	136	1.3	26	0.2	241	2.1
II to IV	18	14,403	8,312	57.9	3,023	21.0	1,551	10.7	759	5.3	301	2.1	209	1.4	71	0.4	177	1.2
0 to IV	68	25,293	15,019	59.4	5,086	20.1	2,594	10.3	1,242	4.9	488	1.9	345	1.3	97	0.4	418	1.7

thirty-four months, and was not always sure of green and blue. Sanford reports one child as follows: At seventeen months, none; twenty-four months, blue, brown and pink; thirty months, black, white, red, green, blue, brown, pink; forty months, black, white, red, green, blue, and yellow.

"E" used no color terms at twelve months of age. Her first color term was blue in her eighteenth month. Her mother had put a blue dress on her. This greatly pleased her and she began saying "blue dress" in imitation of the expression used by her mother. By her twenty-fourth month she could distinguish the following colors and name them correctly: blue, green, red, white, and yellow—5 in all.

As her mother frequently worked with paints—painting felt and china, "E" soon became acquainted with color terms —pure colors, shades and tints. At her thirty-sixth birthday she used correctly the following terms: blue, black, brown, dark, green, gray, light, pink, red, white, yellow—11 in all. This number steadily increased until at her forty-eighth birthday she was using: blue, black, brown, chrome-yellow, dark, dark-blue, dark-brown, green, gray, light-brown, orange, pink, purple, red, tan, white, yellow, yellow-ochre — 18 in all.

This is greatly in excess of the number used by the average child, but is due to her unusual opportunity to associate almost daily with these colors. When her mother was painting she also desired to do so, and was very early given a brush and water colors.

VI. Number Vocabulary

Whipple (32), Mateer (19), and a number of other writers attempt to justify themselves in inserting "fifty," "ninety," "one thousand," etc., in their list of words. The child may use them in his speech but certainly cannot comprehend their value sufficiently to justify their addition to the list of words in the vocabulary. No numbers have been included in "E's" list above "six," for the same reason that words used in her nursery rhymes have been excluded—they have no content in the child's mind, not even magnitude. Number expresses relation. When "E" was asked which she most desired, 15 marbles or 20 marbles, she would hesitate a moment and then choose at random, showing that she did not comprehend any mathematical ratio.

At twenty-four months of age she could count to five, and by various tests made showed that she understood the numerical relations of "one," "two," and "three." It was with great difficulty that she was taught to count beyond five. Doubtless the "plateau stage" was here operative; but by her

third birthday she could count objects to fifteen; and understood the integral relations of four. She would name four objects when presented to her without counting them. If asked how many two and two made, she would answer "four." She knew all these integral combinations without their concrete application; in fact, she preferred not to use apples or blocks, though her results were equally accurate with concrete application.

When forty-eight months old, she could count correctly twenty objects, and very seldom made an error. However her concept of number relations ended with "six." She knew that six was more than five and knew that it was *one* more. She could give all the integral combinations which made six. If told that there were six apples on the table and that four were removed, she knew that two remained. Concrete application seemed to be no aid to her. She knew the correct result as readily when asked to tell how much three and three would make, as if asked how many apples three apples and three apples would be. And as far as it was possible to determine she did not imagine apples or any other objects. It is possible, however, that she had repeated the answer over so often that the result was associated with the problem,—a mere memory process rather than an abstract logical concept of their quantitative relation; just as the child who learns that $6 \times 7 = 42$, without having formed any mental image whatever —merely a matter of associative memory.

This may, however, throw an interrogation into the theory usually advanced by educators that all number work in the first few grades of school should be concrete.

In comparison: A. Stevenson (27) reports a case in which the child could not use number terms beyond *two* until nearly in his fourth year. Any number beyond *two* was *nine*. Jegi's child (13) at two years of age counted to *twelve*, but could use only *one* and *two* correctly. Whipple's three-year-old boy counted correctly to *thirteen*, and could apply correctly numbers from *one* to *four* (33).

B. Development

I. Origin of Speech

Settlement of this controvertible problem will not be attempted; neither shall we summarize present theories, nor advance a new. Philologists have long recognized the similarity between the development of the speech of the child and the language of the race. That children can invent a language of their own is now generally conceded by psychologists. Color is given to this view by examples cited by Dr. Hale (Romanes (47), Chamberlain (33), Stumpf, et al.). Children,

however, have this advantage over the race—an example has been set for them, and through the process of evolution have come into the world with a richer inheritance of speech organs and speech centres than primitive man. Still this process may be the same in kind if not in time. Parents imitate children and thus put meaning into their "lol" words. This aids materially in shortening the time.

The "Divine origin theory" made its exit at the advent of the theory of evolution. The "Onomatopoetic" (Darwin), Ejaculation (Whitney), and the "ding-dong" (Max Müller) theories have each much in their favor. That some words are acquired in each of these ways may be corroborated from the vocabulary of every normal child. But these theories fail to explain how the race acquired the power to use its imitations and associations for speech purposes. Much might be said in favor of Ludwig Noire's theory that a man thinks because he speaks, rather than that he speaks because he thinks. But why not a parallel development? Why must one be necessarily the sequence of the other?

A child's early sounds and babbling are not directed with a conscious purpose to convey thought. (Wundt (54)). But when the child cries "ma" and "da," the proud mama and daddy feel flattered and imagine the baby is learning to speak, come to it and joyfully repeat the sound, minister to its wants, and thus associate themselves with the sound uttered. The child consequently by its usual habit of repeating a pleasing sound, expands "ma" to "mama," and "da" to "dada." These early sounds are not uncommon in the animal kingdom —example, the lamb. "Ma, da, la, ta" become root words in many languages (Chamberlain (35)). Again, the child is a product of his social environment. His emotional nature is not unlike that of the adult. His social environment aids and stimulates him in expressing his social needs. The development of language in the human race is synchronous with the advent of the gregarious instinct. Mutual sympathy and similar emotions led to the expression of this common feeling. Later, intellectualization on the part of the child and the race permitted ideational processes resulting in abstract language or language proper.

Observation of "E" illustrates the foregoing processes and stages. This will be elaborated under II, 1, and 2, sufficiently; a similar statement at this point would be redundant.

II. Growth. 1. Stages

a. *Reflex.* Psychologists in general agree that the different stages of acquiring a language may be to a certain extent chronologically classified, though all stages overlap irrespec-

tive of the basis of classification. There is, too, a general agreement that the first cry of an infant has no language significance. Preyer (46), Perez (44), Moore (21), Trettien (31), Sully (50) and others agree that it is a cry of pain, rather than "a cry of indignation and of wrath" (Kant), or "a lament over the sin and misery of this world." How may we be sure that it is even a cry of pain? Preyer (46), Shinn (49), and Genzmer state that the newborn child is insensible to the prick of a pin, application of ice-cold bodies to the skin, and even goes to sleep under a minor operation. "New-born children without any brain at all cry out" (Preyer (45)). Some instead of crying, sneeze (Darwin). Preyer (45) contends that though a child is insensible to local peripheral stimulation, pain may come from a feeling of general discomforture, *i. e.*, a change of temperature; and that the expression on the face of a child at birth showed that it was in distress. We have no right to interpret expressions of a child as resulting from sensations from the standpoint of adult psychology. Comparative psychologists certainly do not grant us this privilege. Since children without brains cry out, we may do well to look for some other cause. Sigismund says that the sound is made by the air rushing into the lungs. This looks logical. Peripheral stimulation affecting a partly developed nervous organism produces a tension of the vocal chords, and the inrushing air produces the cry. In the case of "E" it was a distinct wail which continued for a few seconds, and seemed rather mechanical, like a toy which gives a sound when a spring is touched.

Neither have the profuse spontaneous gestures any language significance at this period. The gestures are not physical expressions indicative of psychical activity. The child has no thought or emotions to express (Preyer (46), Tracy (51)). His senses have not yet awakened. He is blind, deaf and insensible to other local stimulation. This stage may be adequately termed the Reflex stage. (Lukens (17), Kirkpatrick (15)). For the first few weeks the vocal expressions and physical gestures result from external stimulation, and not from mental initiative. At this stage the gestures are profuse and undirected. As every impression must have an appropriate expression (Judd (38)), the sensory stimulus which the child receives is diffused when it reaches the central nervous system and sets into activity the muscular phenomena observed in every child. These gestures are meaningless as far as an expression of inward emotions or concepts. A pleasurable or painful sensation may cause violent dangling of feet and arms, but it is neither directive nor differential.

b. *Cry and Gesture Stage.* After the first few weeks the cry is differentiated and the gesture directive, and characteristi-

cally expressive. This is the period which has been poetically and likewise scientifically expressed as, "a crying in the night, crying for the light, with no language but a cry." Miss Shinn (49) becomes quite poetical when observing the cry of her *niece*, and proceeds: "Oh, cry of the baby in the night, nightingale for father and mother." Perhaps. I suppose I am rather prosaic; but to me it resembled more nearly a fire-alarm—a hurrying to and fro through cold halls, seeking for mislaid paregoric bottles, etc., etc.

M. Egger states that the voices of children in earliest infancy are not characterized by an individual timber. This is stoutly denied by Dr. Laurent and Perez (44). Tracy (51) states that the cry at first is a reflex squall without expressive modulation or distinctive timber. The same cry serves to express all sorts of feeling. "E's" mother could easily distinguish her cry from many other infants after the first week. At the end of the second week "E's" cry had two inflections —one for comfort and one for discomfort. At the end of the fourth month these cries were sub-modified, for multiple wants desired expression. Preyer (46) states that the word "atta" had at one time eleven different meanings which were expressed with modification and appropriate gesture. The cry of hunger is one of the first to manifest itself. M. Taine (29) says that at this period "all shades of emotion, wonder, joy, willfulness and sadness" are expressed by difference in tone. Sully (50) states, "This cry gradually differentiates itself into a rich variety of expressions of hunger, cold, pain, joy, etc." "The cry of pain," says Leonard, "is generally longer continued than the cry of fear." Hunger is often expressed as a prolonged wail and the cry of fear as being more abrupt and explosive. Lukens (17) states, "the long drawn-out cry of hunger, the subdued and monotonous sleepy cry, the short, high-pitched yell in response to some physical want, and the loud cry of anger, seem pretty well characterized." Mrs. Moore (21) records that "we can distinguish the sounds of hunger, sleepiness, anger, and joy at four months of age."

"E's" cry of pain was a sharp, long, piercing cry. Her hunger cry at this period was a repeated vocal utterance "äuă" and not as shrill as the cry of pain. Contentment was expressed by a droning coo. Anger, or general discontent, or "spunk" was noticed at the end of the fifth month. This cry was harsh, somewhat guttural, and otherwise characterized by a violent gesticulation of hands and feet, with extreme rigidity of the rest of the body. The motion of the hands and legs appeared to express repulsion. This manifestation has changed but little during her four years of life. What Sully calls "fear" was expressed by an attempt to shrink away, the corners of

the mouth were pulled down and short broken cries followed. All these physical manifestations are indicative of emotional conditions. Negation was expressed by "E" as early as the third week, by a turning away of the head when refusing more food. Desire for objects was indicated by an extension of the hands in her 18th week. These expressions should be classed as the rudiments of gesture language, which precedes vocal expression as a means of communication (Judd (38)).

c. *Babbling.* During the thirteenth week "E" began to modify her heretofore purely vocal and labial sounds by lingual sounds. She chanced to discover that agreeable sounds could be made by wiggling her tongue. She seemed to take great delight in lying on her back and singing "nannannan" and alalalala, etc. Both the melody and the muscular stimulation produced a pleasing sensation. This meaningless babble cannot be called speech. That it is entirely free from imitation is not beyond all doubt; but the evidence points to the fact that all normal children will produce similar sounds (Sully (50)). It doubtless presents a chance discovery; it stimulates the child agreeably and the sound is repeated again and again, frequently with considerable modification in pitch and intensity. Mrs. Moore (21) observed that by the close of the fourth month her child had produced nearly all the elementary sounds. The child begins with the vowel sounds; then appear the consonants in combination with vowels (Meumann (41), Perez (44), Shinn (49), Preyer (46)). Since "speech is the use of a sound intentionally as the sign of an idea" (Sully (50)), this babbling is not speech; for we cannot believe that an idea accompanies all this babbling. Yet true language sounds significant if ideas develop from this spontaneous expressive articulation. Buckman (3) puts much confidence in what he calls the ma-da-ta-la series. Muscular co-ordination and control of tongue and lips is here so far perfected that true language may be said to appear in the next stage, viz.:

d. *Imitation.* This stage, according to Tracy (51), embraces the second six months of the child's life. The simple imitation is observed quite early, conscious imitation appears first between the seventh and ninth month (Preyer (45)). Gestures, too, are now consciously imitated; are no longer mechanical, but result from an effort to experience how it "feels" to perfrom an act, or see if he, too, can do it. "The child desires the experience which comes from performing the thing he sees others doing. He wishes to increase his experience," (King (39)). The expression of satisfaction of a child at the success of his efforts leaves little doubt as to his

purpose. His first successful efforts at real articulation come during this stage. The child learns the language of his parents and the peculiar characteristic accents are to some extent acquired. That the child attaches a definite meaning to his articulations results greatly from his parents imitating him and associating a definite percept with the sound. (Wundt (55)). "E" would hear a chick and she would say "peep" or more correctly "ē" and then "coo" at her success with a jumping motion of the body indicating satisfaction. She would listen to the clock and say "ic-ic," or attempt to repeat many of the elementary sounds in imitaion of her parents. "E" imitated many words quite perfectly; would say mamma, papa, boy, dog, with a distinctness highly gratifying to her parents, who were quite elated over the linguistic progress of their first offspring, when the next stage appeared and, in the language of Shakespeare, "Oh, what a fall was there."

e. *Plateau Stage.* With apologies to Bryan and Harter, (Psych. Rev., Vol. VI, p. 346), we believe the above term expresses adequately this period. It represents a time of accumulation and co-ordination, of assimilation and adjustment. There is interpretation with little verbal expression. Progress is made, but very slowly; This stage usually appears between the ninth and fifteenth month of the child's life. Frequently the energy seems to be directed into other channels, viz.: teething and learning to walk. If the child has already learned to walk, or acquired this ability in a day (Jegi (15)), this plateau stage may not be very pronounced. In fact, it is frequently so shortened and modified that it is not readily observable (Jegi (13)). In other instances it is exceedingly pronounced. Lukens (17) cites a very interesting case. Such stages are not infrequent in other fields of psychical and physical adjustments (Judd).

After "E" used the words boy, dog, papa, mamma, with various application, but with rather distinct enunciation, about the tenth month, there was little progress in articulation until about her sixteenth month. "Boy" meant almost anything from a cow to a fire-shovel. If she saw a cat she would say "boy." If she saw a house it was "boy." The inflection, however, varied. But it could not well be observed whether the same inflection accompanied similar objects. Later the word "dog" or rather "da" was most favored, and at least every moving thing was "da." By the end of the twelfth month "boy" had become restricted at least to animate objects; "dog" was seldom applied to any other animals but a yellow hound, a billy goat and a pet brindle cow. The remaining eight words she used have been

explained. Gestures were freely indulged in, and she would turn her head toward many objects mentioned to her, and would pick up objects from the floor if told to do so; but she could not be coaxed into attempting to pronounce them. A few words as "doll" and "bye-bye," which she had been accustomed to pronounce quite distinctly, she no longer attempted in her twelfth month. These words were not regained until her fifteenth month. She learned to walk in her twelfth month. This may have aided in directing her energy into another channel, but it does not explain the whole problem. She was on the "plateau" of development. Trettien (31) states that a child, "F," at eleven months had 80 words, which she had securely associated with ideas, while her spoken vocabulary was very limited.

f. *Expression.* When psychical and motor adjustment of speech centres and organs is nearing completion, the child makes rapid progress in acquiring its native tongue. Trettien's (31) child "F" at eighteen months made very rapid progress, imitating nearly every word proposed to her. Mrs. Hall (10) states that her child in its sixteenth month acquired 93 new words, an increase of 45 over the previous month. Mickens (20) states that at 22 months of age his child acquired 70 new words, an increase of 46 over the previous month. Trettien (31) writes, "Felix was very backward in learning to speak. Suddenly, one evening, it was as if the Holy Ghost had descended upon him and had poured into him the gift of speech; for he repeated everything that was spoken to him very correctly." These few examples clearly show that when the "plateau" stage has passed rapid progress is made. Like learning to walk, this ability may be manifested in a day (Kirkpatrick (40), Jegi (13), Lukens (17)). "E" made little progress until her eighteenth month; then she seemed to take special delight in imitating nearly all words she heard. She would pronounce words often which surprised us greatly, not remembering when she might have heard them. This was her last stage. She was now in line to become a full-fledged linguist.

2. Method

More important than the stages, is the knowledge *how* the child gets its vocabulary. The method is difficult of analysis; (1) in the beginning it must be wholly by external observation, (2) later this may be supplemented by a more subjective process of questions and answers, and experimentation. But this requires the following precautions suggested by Meumann (41): (1) The child's vocabulary must be interpreted in the psychology of the child. . (2) The interpretation of the words

must be studied from the standpoint of genetic psychology. (3) No abstractions occur in his vocabulary (this point is not conceded by all). (4) Observations should be extended to the fifth or sixth year, as these latter years aid in interpreting the first few years. The first precaution cannot well be over emphasized. Adults are apt to "read into" the child's activity many qualities from their own viewpoint.

a. Reflex Expression. Confining ourselves to vocal expression, the first cry of the child is reflex. It is not emotional. "It seems altogether impossible that the expression of the new-born infant, however violent, can have any emotional significance." (King (39)). His cries come from external stimuli or from internal organic adjustment. The cry is not of discomfort; it is instinctive; it is but the adjustment of "impression and expression"—a matter of co-ordination of stimuli and motion, not emotion.

b. Spontaneous Emotional Expression. The first method is the precursor of the second, yea, more, a determinant. Gradually the child becomes conscious of the spontaneous, impulsive, instinctive activity. The machinery is being adjusted; "A living, conscious automation," as Miss Skinn (48) interprets it. Sensations are inhibited, cognized, and directed into definitely established channels. The efficiency of this adjustment gives a general emotion of pleasure; when ill-directed or momentarily inhibited there is a conflict and the emotion is pain. The expression of fear often observed may be only the mal-adjustment, or the necessity for new adjustment of stimuli and response. Fear then would not be the result of heredity or education as Preyer (46) notes, but the kinæsthetic memory of the prior emotion resulting from a former mal-adjustment, or rather a tendency to check instinctive responses to social stimuli. King (39) believes that a child is born with a small number of motor co-ordinations of an instinctive type, and any stimulus may be diffused and find expression in a variety of avenues—joy, fear, etc., and the direction the stimuli take is dependent largely on what channel has been previously used. But the conflict does not always remain painful. The child early differentiates the emotions. The conflict may then manifest itself in wonder, surprise, joy, etc. Out of this emotional attitude of response arises the first exclamation of articulate language. His vocal expression of these emotions may be limited to a few syllables, for vocal expression is dependent on physical adjustments which have not yet sufficiently matured to respond to a great variety of inter-reactions or combinations of sounds. When the child points to an object and says "da" (the same in many languages) it is, probably, in its inception merely an interjectional expression of the "faint shock of won-

der produced by the appearance in the visual field of a new object" (Sully (50)). As fast as the child can adjust his vocal organs to his emotions we have various expressions. These are at first more related to singing than talking (Sully (28)). This may have been true of the race (Darwin).

c. Volitional Expressions. When a child becomes conscious of its activity and able to direct expressions at will, he can make a choice. Perez (44) states that it is manifest at first simply in the substitution of one tendency for another resulting from conscious attention to reflexive activity. James says that this cannot be until the child is capable of memory images, Wundt (Menschen-und Thier-seele), on the contrary, maintains that attention is present in the most mechanical movements. The child remembers the experience of former activity and desires again to experience this sensation and he says "yem" when he desires to get down for a buggy (Grossmann). "E" very early acquired the word "down" and "uppaday" when wishing to get down from or up on my lap.

She said "ī" when she desired water and "ĕ" when she wished to nurse. At the age of 27 weeks Sully's (50) little boy said "o" for the expression of pleasure and "a" for surprise. Darwin's boy said "mum" when it wished something to eat. These first articulations are all expressions of emotions (Meumann (40)) and are consciously directed. They may be designated as "wish-words" or "feel-words."

d. Imitation. This method was partly outlined when discussed under (II-1-d). Preyer (46) writes: "Imitation is without doubt the first and most important factor in the learning of language by the individual." Sully (50), says "Learning the mother tongue is essentially a kind of imitation." When the child has developed his muscles by promiscuous kicking and dangling, he gets up and walks. When he has been babbling for some time and developed and co-ordinated his speech apparatus, he begins to "talk"—begins to imitate sounds heard and associates with this sound definite mental concepts. He has developed the power of active attention sufficiently to enable him to reproduce sounds spoken in his presence. "He imitates the sounds made by animals and inanimate objects" (Preyer (44)): more than this he will at this age (twelve months) attempt imitation of physical expression of emotions. When sounds and expressions are imitated, the child associates a meaning not only with the auditory sensation, but the kinæsthetic as well. "E" exhibited no abnormal peculiarities in this respect. She observed carefully gesture and articulation of her parents, would repeat what she heard, and sing when others sang.

e. Associative-Reproduction. When the child begins to in-

tellectualize (Meumann (40)) he begins to analyze and differentiate. "Papa" no longer stands for the expression of an emotion but for an idea. Certain attributes are recognized as belonging to a definite object. "Papa," at first, was an expression of pleasurable emotion which was uttered when father came home; or unfortunately it might be the expression of a painful emotion. Now, "papa" represents an intellectual process—an ideation. At first "papa" has attributes in common with other objects—all men are "papa." Perhaps the child may be capable of more accurate discrimination than usually credited with when he calls men papa, but since his vocabulary is limited, he may find it convenient to so express the classification just mentioned. The word "papa" most nearly expresses his concept. Meumann (41) thinks that the child does not form general concepts until about four years of age, and it is doubtful whether distinct classification appears much earlier, but the associative process is developed much earlier (first six months). When he acquires the word "man," a concept distinct from "papa," he at least begins analysis. "Man" now becomes a general concept and "papa" is again applied to a specific object. But *this* "papa" is an altogether different "papa" from the former two. The first was a mere percept. The second a concept now expressed by "man;" the last a concept, though doubtless very limited in its application.

When the child imitates he reproduces but there is no *associative*-reproduction. At first they are "pennies," then some become "white pennies." "E" saw a duck and said "quack." The duck is in a latticed box, and the box is also "quack." She found the picture of a goose in a story book, and the book henceforth became a "quack" book. When in her third year she had observed her father "run" rats in a "maze" at the psychological laboratory, his co-worker, a fellow student, was always present on such occasions. When "E" would meet this man on the street she would always exclaim: "There comes the rat-man." She had been told that a certain big yellow dog had been found at a fire. She often begged her father to get her a "fire-dog" Lather she would call "shave;" would say "hatchet that for me," meaning, "chop that with a hatchet." The teacher who collected the pennies at Sunday school became her "penny-teacher," and the candy secured from an automatic street-vending machine, was called "punch-candy."

Associations are easily formed. The child is a poet. He can see likeness and similarity where the adult observes only differences and contrasts. Associations are primarily spatial, although they are at times synchronous, rarely attributive in the first few years. Inferences are rarely logically drawn before the age of four. Induction is prior in development to deduc-

tion; yet who is the psychologist so bold as to claim to have fathomed the process of a child's mind? When "E" was four, one day while passing along the street she noticed a tree which had been cut. She asked if George Washington lived there. She had been told the story of the "hatchet" in her kindergarten, but had never mentioned it in her home. Was this deduction or mere association? Frequently in attempting to read the efforts at psychological analysis of the mental activity of an infant child we are reminded of the answer given to the question of old Polonius: "What read you, my lord?" "Words, words, words!"

f. Invention. If children were forced to live alone would they develop a language of their own? "Yes" say Judd (38), Tanner (52), Sully (50), Tracy (51), Romanes (47), Taine (29), Preyer (46). "No" say Wundt and Idelberger (55). "Perhaps" say Meumann (41), Compayre (37), *et al.* Nearly all admit that the child is normally not permitted to exercise his inventive genius to a great degree, also that too much credence cannot be given to the stories of Dr. Hale and others. Experimentally we are much in the dark, as yet. That normal children never invent words, both sound and meaning, is difficult to disprove, but without imitation there would be little resemblance to a Yankee vocabulary. Preyer (46) states that "after sound and sense is once established through imitation," the child then freely invents new combinations, "although to a more limited extent than is commonly assumed." Much of the disagreement here is the result of the definition "inventing articulate speech." Methods of invention are unique and varied. "E's" invented words may be roughly classified thus:

(1) Borrowed from adults but with wrong form. A pure creative element is not found in child speech (Meumann (41)). The influence of the adult begins at birth. Infants who early associate much with their parents learn to talk sooner than those who do not have this privilege. Since examples of invention might be multiplied in profusion, illustrations will be drawn only from our own observations. In her fourth year she used the word "thernly." An object was not a "thernly" bit nice. This doubtless came from certainly. She often told us not to "mickle" her things. This may have originated from *mix up* or *muss up*.

(2) Proper words with wrong meaning. This introduces the disputed subject of classification of parts of speech from a child's standpoint. Miss Shinn (49) states that nouns and verbs are always being interchanged. "E" used "hatchet" for "chop;" "smoke" for "pipe;" "corns" she called "popcorns." She at first said, "sugar-bunch," then "sugar-hump," next "sugar-lump." She frequently said, "Don't tell me any more questions."

(3) Onomatopoetic sounds. Every normal child will naturally call a dog a "bow-wow," a clock a "tic-tic," and a cow a "moo," etc. "E" imitated three sounds very accurately, and other similar sounds without much practice. Many of the sounds imitated never became embodied in her vocabulary. Much of the imitation is for the pleasurable emotions furnished.

(4) Onomatopoetic sounds otherwise applied. Through association these sounds are applied to other objects. "E" called a latticed box a "quack" because the ducks within had been so designated.

(5) Ejaculations. Natural grunts, and other vocal utterances are frequently attached to objects, or actions. Example, "ouch," "boo," "oh," "o͞o," etc. Emotions are often thus expressed.

(6) Construction from "lol" words. Children not infrequently construct some original word from their early babbling sounds. Many of their first words are such. Some contend that the child attempts to imitate here, but is unable to reproduce the sounds he hears. Should this always be true, it fails to explain why he continues using it after being able to articulate more distinctly. "E" used "I" for water, "uppeday" for up. "Da" meant "daddy," "there," and many other ideas. "Rolabola," is still being used.

(7) Combinations. All sorts of combinations are made by the average child; thus coining new words. He sees similarity between quite incomparable objects. "E" seeing a small coffee-grinder, called it a "coffee-churn." Candy obtained from automatic slot-machines was called "punch-candy." The teacher who gathered up the pennies at Sunday school became her "penny-teacher." A boiled egg was a "cup-egg;" a fried one a "plate-egg." A sack with holes was a "hole-sack," a yellow dog, a "fire-dog;" a conductor, a "ticket-puncher."

(8) Formation of *regular* variants. Irregular inflections of verbs and adjectives are difficult for the child. "E" invariably said "Bleeded," "hurted," "rund," "seed," "gooses," "tooths," and the like. These may not be pure inventions, but they are formations which the child has not heard, but creates from a knowledge of the laws of regular inflections.

3. Systematic Classification of Progress Made in Different Parts of Speech

The following table shows the progress made in each subdivision of speech. It is self-explanatory. It may be interesting to observe that not all the words which appear one year are found in the next.

All of the first year words appear in the second.

5 nouns, 4 verbs, 1 adjective, 1 adverb, and 1 interjection found in the second year are not found in the third.

24 nouns, 2 verbs, 1 adjective, 1 adverb, 1 preposition, and 4 interjections found in the third year are not found in the fourth.

All of the second year words appear in the fourth.

"Looking-glass" in the third becomes "mirror" in the fourth. "Night-drawers" in the third becomes "night-gown" in the fourth. "Sew" is found in the third, but "sow" in the fourth. "Teeth" is found in the third, "teeth" and "tooth" are found in the fourth. These illustrate some of the changes continually going on.

Gale (7) records the following summary: 35 nouns, 16 verbs, 4 adjectives, 1 adverb, which were found in "Ruth's" vocabulary at two years of age and not found at three.

TABULATION

	Nouns				Verbs				Adjectives				Adverbs			
Age	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Total	7	212	406	730	1	88	147	265		37	65	135	2	21	31	86
A		7	9	10		2	3	3		2	3	8		4	4	11
B	1	28	48	68		8	17	19		4	10	14		4	5	7
C		26	50	83		10	14	19		1	3	8		1	1	2
D	2	9	14	32		6	12	10		2	3	8	1	1	1	2
E		4	8	18		1	2	3		1	1	4				4
F		12	17	28		5	7	12		3	7	9			2	4
G		8	12	18	1	3	6	7		2	3	7			1	4
H		9	18	36		2	8	15		2	4	5		1	1	3
I	1	2	7	9		3	3	4						1	1	1
J		2	3	6		1	1	2								1
K	1	4	8	11		2	3	5								1
L		6	15	28		4	6	13		2	4	9				3
M	2	12	18	38		2	3	15				5				3
N		7	10	19			1	4		2	2	7		2	3	4
O		2	6	8		1	1	3		3	3	4		3	4	7
P		17	43	71		6	13	20		1	2	4				2
Q		1	1	3		1	1	1							1	2
R		7	14	29		4	6	11		1	2	5				2
S		24	56	110		9	17	51		2	7	12				5
T		17	29	55		9	10	16		6	8	15		2	3	8
U		2	2	3		2	2	6				1	1	1	2	2
V		1	3	4											1	1
W		5	15	42		7	11	26		2	2	8		1	1	4
Y				1						1	1	2				3

III 1. PRONUNCIATION

Indistinct articulation may result from the following causes: (1) Undeveloped organs of speech. A child sometimes does

TABULATION—*Continued*

	Pronouns				Prepositions				Conjunctions				Interjections			
Age	I	II	II	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Total		8	14	23		6	9	19		1	1	5		6	8	15
A								4		1	1	1				1
B							1	3				1		1	1	2
C																
D																
E																
F								1								
G																1
H		2	4	5										1	2	3
I		2	2	2			1	3				1				
J																
K																
L																1
M		3	3	6												
N																
O				1		3	3	4						3	4	2
P																
Q																1
R																
S														1	1	1
T			2	4		2	2	2				2				2
U			1	1			1	1								
V																
W				1		1	1	1								1
Y		1	2	3												

not articulate correctly because of lack of proper co-ordination of his vocal apparatus (Tracy (51), Preyer (46)). His speech centre in the cerebrum is yet undeveloped. He is unable to manipulate the tongue, vocal chords, etc., to produce the sounds he may hear. "The power to understand words is usually more quickly gained than the power to control the vocal apparatus" (Kirkpatrick (15)).

(2) Imperfect perception. Lack of discriminary power often prevents distinct enunciation. The auditory perception is undeveloped, and so the child says "ē" for eat, and "tention" for attention.

(3) Lack of memory. Frequently the child hears a word and sometime later when he attempts to pronounce it he omits part, modifies, or substitutes. This is true, not of the child alone, as the following caricature from an English paper illustrates. A lady walked into a judge's office and inquired if he was the reprobate judge, and said that her husband had died detested, leaving her two small infidels, over whom she desired to be pointed executioner. "E" one day said she wanted

a "Pantograph." This was the name of a local newspaper. She wanted a "pantograph with a horn." She had been visiting and had seen a phonograph.

(4) Imperfect example. Adults intentionally omit or slur certain sounds of words. The child reproduces only the accented portions, or substitutes more familiar sounds.

(5) Difficult combinations. Although certain elementary sounds or words may be distinctly uttered by the child, certain words or sentences containing these sounds are difficult to speak because of their combination. This tempts him to substitute another sound, as "wun" for run, "ting" for sing.

Noble (22) has given us a law of pronunciation, viz.: Correct pronunciation depends on close perception and knowledge of the motions necessary to produce sounds. Hence those sounds most easily articulated are labials and dentals; those most difficult, the gutturals and medials. Tracy (51) gives the following order, beginning with the most difficult.

r e th v sh y g ch s j e f t n q d k o w a h m p b

Merely considering the initial sounds, though this is not an accurate criterion, the least difficult sounds for "E" were:

Second year K, B, S, P, T.
Third year S, K, B, P, T.
Fourth year S, K, B, P, T.

2. Development of Correct Pronunciation and Distinct Enunciation

Since imitation is the important source of a child's vocabulary, it surely behoves parents and others to permit children to hear only correct pronunciation and distinct articulation. That some parents still believe that a child can better understand its own "baby talk" than the "Queen's English," is too true. Accuracy in pronunciation can result only from imitating correct articulation. The practice of using "baby talk" when speaking to children is decreasing. Preyer (46) thus gives his opinion: "Children should never at the expense of their own natural development become entertaining playthings to pass away the time for adults." Children who associate much with adults make more rapid progress in correct pronunciation than those who associate much with other children. "E's" articulation has always been quite distinct, barring natural hinderances caused by undeveloped speech centres and muscles of articulation. At the age of four there is no "baby talk," and her enunciation is as distinct as that of the average adult, except that the "s" sound is still inclined to "th." Sit is "thit." But when shown where to place her tongue, the "th" disappears. The difficulty is found only in the initial "s."

IV. Sentence Formation

The first expressions of the child should be called sentence-words rather than "parts of speech." It is the *whole* of speech. When "E" cried "ma," it was a complete thought expressed. Meumann (41) calls it a wish-word. It is rather a "wish-sentence." As Waitz says, "The unit of language is not the word, but the sentence." And Romanes (47), says "every word was originally itself a proposition." Dewey (6) states that his child at twelve months of age had 17 words, but these were classified grammatically rather than psychologically. "E" at twelve months had 10 words (see table) with similar classification. Though unpsychological there is no better method. Trettien (31) states that such words (?) as "ma" (mother) should be called "interjectional - nominal - adjectival - verbal expressions. Dewey (6) says "door" is a nominal-adjectival-verbal-interjectional complex. This may be psychological and again it may be nonsense. Lukens (17) comes nearer being correct when he states that a child does not really use "parts of speech" in a grammatical sense until all parts of speech are used. "Parts of speech" are primarily grammatical. To quote Herbert Spencer, "Language was made before grammar." As with the race so with the child, "the sentence precedes the word" (Sully (50)). There is no universal psychological arrangement of the words in a sentence (Wundt (54)). Children like savages blurt out a complete sentence at once (Chamberlain (35)). Early Roman sentences were not divided into words. Speech came before parts-of-speech. Grammatically "ma" is as much of an interjection as "Fire!" But Whitney (53) says that interjections are not in the proper sense parts of speech.

When "E" said "iah" (water) and ē (eat), it was merely the outburst of an emotion. If analyzed it might be a half-dozen sentences. When she said "tē-tē" she wanted to say that there were wrinkles in her stomach which were making her uncomfortable. She had learned through experience that when she said "tē-tē" it meant pleasure. This is true of all early expressions. When "E" saw a dog, she saw an object in motion. Her parent said "dog," she imitating said dä. Mrs. Hall (10) states that "objects are seen as a whole without regard to either quality or motion." Motion is the first quality (?) of the object seen. It presents spatial qualities. It was there, now it is not there. This is what the child first sees. Motion rather than spatial relation or spatial qualities were observed when she said "dä." "Dä" was not an interjectional-substantive-attributive complex; it was a sentence—a thought expressed in words—no more, no less. When

she said "doä" she meant that the door was in some way intimately connected with her desire. Either, here is a door; the door is shut; open the door, etc. "Doä" might convey or express all these meanings. The adult says "go" and expresses a sentence. The grammarian says this is elliptical, it must be expanded into a complete sentence, and then "go" is a verb. Unfortunately for both grammar and "E" she did not know this and called raisins "eats" and an alligator "bite." Parts of speech can only be classified according to the *use* of a word in a sentence.

Later more than one prominent word in the sentence is chosen. "E" in her second year said "opa doä." This is truly an abridged grammatical sentence. An imperative sentence. Negation was first expressed with the word "no" as a sort of enclytic. "Esbet go-no," meant: "Elizabeth does not want to go." "Yes" was not used until the 32d month. Before that time, "E" would answer the question: Do you want this? with the word, "want." And the question: "Are you going?" with, "I are." "Are" came from pure imitation. Such solecisms result from the same cause and may be similarly classified with mispronunciation. The use and arrangement of words comes from imitation, the same as pronunciation. In some cases the child merely forgets. We say to the child; "You are," and he very naturally says "Yes, I are." Solecisms are always so plentiful and prominent in the speech of every child, that one is surprised that any one should ever have entertained the idea that if a child had never heard an incorrect grammatical expression he would never use one. Irregular inflections are very difficult for the child. Hence, "E" said, "He does n't know, *do* he?" "When did it *flew* away?" "You *hurted* my hand." The laws of pronunciation will take care of expressions like these: "I showed it *at* you." "Don't *tell* me any more questions."

Homer used the plural form before using the singular form, in noted instances. This is true of the primitive man (Chamberlain (35)). "E" used many plural forms before using the singular. *Shoes* before *shoe; toes* before *toe*, *teeth* before *tooth*, etc. They are so listed in the Table of Vocabularies. The reason for this is obvious—the child heard the plural form more frequently than the singular.

From a grammatical standpoint, "E" after using nouns and verbs, used adverbs, next came adjectives, pronouns, prepositions, and lastly conjunctions. Her first conjunction was "and" in her twentieth month. At two years of age she was using all the parts of speech and used simple, compound and complex sentences.

V. Word Content

On "E's" fourth birthday the following words were given her to define. She was in each case asked: "What is ———?" These "definitions" illustrate more associative memory than analysis and classification.

Apple—You buy apples.
Banana—Is to eat.
Bird—Flies and flies.
Bed—Is to sleep on.
Boat—Is long and has two ends. Will you make me a boat?
Book—Paper stuck together.
Catalogue—To see what kind of a doll-cart to get for me.
Chair—To sit on.
Chest—To keep little and big.
Chocolate—We make candy with chocolate.
Clock—To look what time daddy comes home.
Clouds—Are in the sky.
Corn—To eat and feed to black cows.
Coat—To wear.
Curtain—To put up at the window.
Daddy—Is like a man.
Darning-cotton—Is to mend stockings with.
Doll-cart—To get for me.
Dolly—Is a little doll.
Eyes—Is to look at something.
Fly—Is a fly. Do you remember that?
Elevator—Go in and stand and go up.
Glasses—To look out of.
Go-cart—Is to wheel the dolls in—a cab.
Hair—Is to comb. You can remember.
Hair-ribbon—Is to put on your hair, daddy.
Hand—Is to carry dishes with on the table.
Ink—Is to write with.
Kitchen-cabinet—Is to put dishes on.
Lake—Has water in.
Library—Is to study in.
Lips—Is to kiss with.
Milk—Is good to drink.
Milk-wagon—So you can get milk.
Mother—Looks like a lady.
Mouth—Is to eat with.
Nose—Is to blow with.
Pen—Is to dip it in the ink and to dip it out again, and to write.
Pencil—To write with.
Picture—To hang up.
Porch—To walk and stand on.
Poker—To poke fire with.
Pump—To get water in.
Rain—Is water.
Range—To cook on to make paties.
River—Is water.
Rat—Has four toes. It scratches you.
Rabbit—Has two in front and two in back. That is four, isn't it? It has four feet.
Safety-pin—Is to pin with.
School—Is at the schoolhouse.

Shampoo—Put on your hair to get vasaline out.
Snow—Is white.
Stocking—To put on legs.
Stomach—Is to get full. I won't say any more.
Stove—To build fire with.
Strap—Is to paddle with.
Supporters—Is to fasten up stockings.
Switch—Is off trees.
Table—To eat on.
Teeth—Is to eat with.
Tea—Is to drink.
Tights—Is to keep warm.
Thread—Is to sew with.
Typewriter—To make letters.
Whip—Is to spank with.
Window—Is to look out of and to put up.

Conclusion

"E" is now nearly five years of age and uses approximately 1,800 words. It is surprising to note how rapidly her vocabulary is increasing. She has attended kindergarten a few months and takes great interest in the work there.

Her color vocabulary has not increased except by a few terms for shades and tints. She can count to 1,000 and can tell the pages of a book up to 1,000. When a hymn is announced, as 187, she very frequently can find it.

The writer intends to continue the enumeration of her vocabulary for succeeding years. It will soon be necessary to use different methods. By taking the unabridged dictionary, my own vocabulary two years ago was estimated at 44,000 by taking every 50th page; and 43,000 by taking every 10th page.

Correspondence in reference to errors, or suggestions concerning this work, will be gladly received.

References Found Helpful. Magazines

1. Allen, Margaret. "Notes on the Development of a Child's Language." (Mother's Nursery Guide, Feb., 1893.)
2. Barnes, E. "How Words Get Content." (Studies in Education, Vol. II, 43-61.)
3. Buckmann, S. S. "Speech of Children." (Nineteenth Century, Vol. XLI, 793-807.)
4. Chamberlain, A. F. & I. C. "Studies of a Child." (*Ped. Sem.*, Vol. XI, 264-291.)
5. Conradi, E. "Speech Development of the Child." (*Ped. Sem.*, Vol. XI, 328-380.)
6. Dewey, J. "The Psychology of Infant Language." (Psych. Rev., Vol. I, 63-66.)
7. Gale H. "The Vocabularies of Three Children in One Family at Two and Three Years of Age." (*Ped. Sem.*, Vol. IX, 422-435.)
8. Gale, H. "Recent Studies of Children's Vocabularies." (Child Study Mo., Vol. VI, 272-280.)

9. GALE, C. M. & H. "Children's Vocabularies." (Pop. Sci. Mo., Vol. LXI, 45-51.)
10. HALL, W. S. (Mrs.). "First Five Hundred Days of a Child's Life." (Child Study Mo., Vol. II, 585-608.)
11. HOLDEN, E. S. "On the Vocabularies of Children under Two Years of Age." (Trans. Am. Phil. Assn., Vol. VIII, 58-68.)
12. HUMPHREYS, W. "A Contribution to Infantile Linguistics." (Trans. Am. Phil. Assn., Vol. XII, 5-17.)
13. JEGI, J. "The Vocabulary of a Two-year-old Child." (Child Study Mo., Vol. VI, 241-261.)
14. KIRKPATRICK, E. A. "Number of Words in an Ordinary Vocabulary." (Science, Vol. XVIII, 107-8.)
15. KIRKPATRICK, E A. "How Children Learn to Talk." (Science, Vol. XVIII, 175-6.)
16. KIRKPATRICK, E. A. "A Vocabulary Test." (Pop. Sci. Mo., Vol. LXX, 157-164.)
17. LUKENS, H. "Preliminary Report on the Learning of Language." (*Ped. Sem.*, Vol. III, 424-460.)
18. MACH, E. "Language: Its Origin, Development and Significance for Scientific Thought." (Open Court, Vol. XIV, 171-178.)
19. MATEER, FLORENCE. "The Vocabulary of a Four-year-old Boy." (*Ped. Sem.*, Vol. XV, 63-74.)
20. MICKENS, C. W. "Vocabulary." (Child Study Mo., Vol. III, 203-205.)
21. MOORE, KATHLEEN. "The Mental Development of a Child." (Psych. Rev., Mon. Sup., No. 3, 1886.)
22. NOBLE, E. "Child Speech." (Education, Vol. IX, 44-52.)
23. SALISBURY, A. "A Child's Vocabulary." (Educational Rev., Vol. VII, 289-293.)
24. SANFORD, E. C. "Notes on Studies of the Language of Children." (*Ped. Sem.*, Vol. I, 257-260.)
25. SCRIPTURE, E. W. "Terminal Verb in Infant Speech." (Science O. S. Vol., XXIII, 62.)
26. SHINN, MILLICENT. "Vocabularies." (Child Study Mo., Vol. VI, 398-401.)
27. STEVENSON, A. "Speech of Children." (Science O. S., Vol. XXI, 118-120.)
28. SULLY, J. "Baby Linguistics." (Eng. Ill. Mag. Nov., 1884.)
29. TAINE, H. "Acquisition of Language by Children." (Mind, Vol. II, 252.)
30. TRACY, F. "The Language of Childhood." (*Am. Jour. Psych.*, Vol. VI, 107-138.)
31. TRETTIEN, A. W. "The Psychology of Language Interest in Children." (*Ped. Sem.*, Vol. XI, 113-178.)
32. WHIPPLE, G. M. "Vocabulary and Word-building Test." (Psych. Rev., Vol. XV, 94-105.)
33. WHIPPLE, G. M. "The Vocabulary of a Three-year-old Boy with some Interpretive Comments." (*Ped. Sem.*, Vol. XVI, 1-22.)
34. WOLFE, H. K. "On the Color Vocabulary of Children." (Neb. University Studies, July, 1890, 205-234.)

REFERENCES FOUND HELPFUL. BOOKS

35. CHAMBERLAIN, A. F. "The Child: A Study in the Evolution of Man." London, 1903. (Chapter V.) 495 P.
36. COLLINS, J. "The Faculty of Speech." New York, 1887. (Chapter III.) 430 P.
37. COMPAYRE, G. "Intellectual and Moral Development of a Child." New York, 1896. (Chapter V.) 298 P.

38. JUDD, C. H. "Psychology: General Introduction." New York, 1907. 389 P.
39. KING, I. "Psychology of Child Development." U. of C. Press, 1903. 265 P.
40. KIRKPATRICK, E. A. "Fundamentals of Child Study." New York, 1907. 384 P.
41. MEUMANN, E. "Die Entstehung der Ersten Wortbedeutungen beim Kinde." Leipzig, 1908. 100 P.
42. MÜLLER, MAX. "The Science of Language." New York, 1862. (Ch. I.)
43. O'SHEA, M. V. "Linguistic Development and Education." New York, 1907. (Chapter III.) 347 P.
44. PEREZ, B. "The First Three Years of Childhood." London, 1889.
45. PREYER, B. "The Senses and the Will." New York, 1898. 353 P.
46. PREYER, B. "The Development of the Intellect." New York, 1889. 317 P.
47. ROMANES, C. J. "Mental Evolution in Man." New York, 1889. (Chapter VI.) 452 P.
48. SCHULTZ, F. "Die Sprache des Kindes." Leipzig, 1880. 46 P.
49. SHINN, MILLICENT. "Biography of a Baby." New York, 1900. 247 P.
50. SULLY, J. "Studies of Childhood." New York, 1898. 527 P.
51. TRACY, F. "The Psychology of Childhood." Boston, 1895. 170 P.
52. TANNER, AMY E. "The Child." Chicago, 1904. 430 P.
53. WHITNEY, W. P. "Language." New York, 1887. (Chapter XI.)
54. WUNDT, W. "Outline of Psychology." (Trans. Dr. C. H. Judd, New York, 1897.) (Especially Chapter IV.) 342 P.
55. WUNDT, W. "Völker-Psychologie." Leipzig, 1900. (Pt. I, 627-644.) 644 P.

YOUNG PEOPLE'S IDEAS OF THE VALUE OF BIBLE STUDY

By DAISY D. BROWN, Hartford School of Religious Pedagogy

This investigation has been made in the hope that it may point the way to better methods of Bible study. It seeks to determine the attitude of young people towards the study of the Bible, and their estimate of the benefit they have derived from such study in comparison with that secured from the study of secular subjects.

In order to gather the desired information, the following questions were submitted:

1. Do you attend Sunday-school or in any other way engage in Bible study? If so, how long have you attended? If not, have you ever done so and how long?
2. Do you think the work that you have in Sunday-school (or Bible class) profits you as much as the work in public school? Give reasons for your opinion.
3. Does the Bible interest you as much as your history, literature, or other subjects do in the public school? Why?
4. Do you enjoy the Bible characters, such as Moses, David, Paul, John, etc., as well as you do such historical characters as Cromwell, Gladstone, Washington and Lincoln? Please answer fully.
5. Do you read or hear the Bible read daily in your home?
6. What part of the Bible do you think is the most interesting?

Please state

Age . . . Girl or boy . . . . Religious denomination . . . . . .

Nine hundred of these question blanks were sent to High schools, Normal schools and Colleges in Massachusetts, Vermont, New York, Iowa, Missouri, Colorado and Texas; to five educational institutions in Japan and to four in India. Over five hundred returns came in and the material from these will comprise the basis of most of this paper. These returns represent twenty different denominations, and ages from twelve to twenty-six, the great bulk of them coming between fourteen and twenty-one.

Of the papers under consideration, thirty-seven are from Japan, thirty-four from India, eighteen from a negro school in Texas and the balance, four hundred seventeen, represent the

states mentioned above. For the sake of comparison these sets of papers have been kept separate and the questions will be taken up in turn and each set considered in reference to that particular point before passing to the next.

1. *Time spent in Bible study.* This first question in regard to the length of time the Bible had been studied was asked in order that we might judge the value of the answers given to the succeeding questions. In the replies we find attendance in Bible study classes ranging all the way from a few months to twenty-two years, the majority of them in the neighborhood of eight to twelve years, 9.8 being the average time of attendance of the young people of our own country, negroes excepted. It is interesting to note here also that 48 per cent. of these read or hear the Bible read every day; 45 per cent. reading or hearing it read in their own homes, and 3 per cent. hearing it read in school.

Among the negroes the average attendance is thirteen years and 67 per cent. of these read or hear the Bible read every day.

The Japanese papers show an average attendance of 6.5 years, 84 per cent. reading or hearing the Bible read daily.

The first eleven papers from India do not state the length of time these young people have been in Bible classes, but of the other twenty-three the average time of attendance is nine years and all read the Bible every day. In most of these schools Bible work is a part of the regular curriculum.

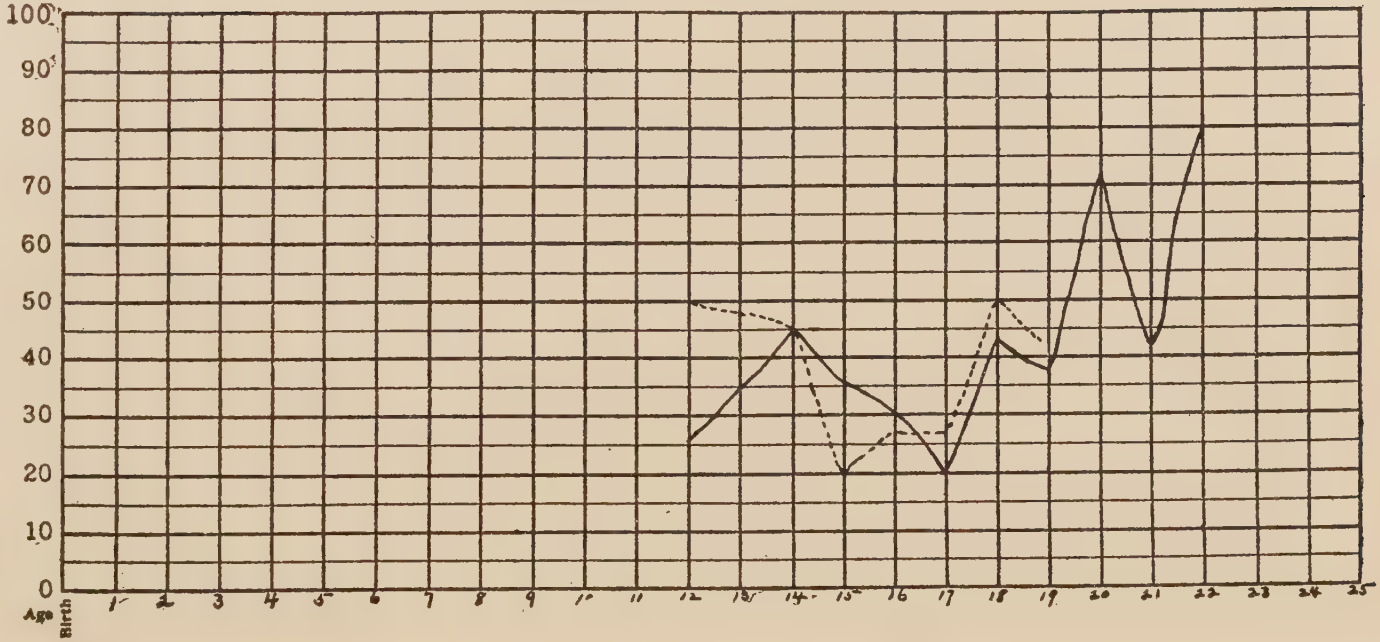
It would seem that the answers to the following questions comparing Bible work with school work in interest and profit ought to be intelligently given with this much of study as a foundation for the replies.

2. *Estimated benefit derived from Bible study compared with that derived from day school work.* We have in this section four hundred seventy-five answers; three hundred eighty-eight from our own young people, eighteen from the negroes, thirty-six from Japan, and thirty-four from India. Of the three hundred eighty-eight first mentioned, one hundred eight are boys and two hundred eighty are girls; 30.5 per cent. of the boys and 38 per cent. of the girls say "no," or 36.6 per cent. of the whole number reply negatively to this question. (22 per cent. of the negroes also say "no," but we find no negative replies in the papers from Japan or India.)

As these papers are arranged according to age, we discover quite a decided difference in the per cent. of negative replies with different ages. This can be graphically shown with the plotted curve as is done in the accompanying diagram. (See Fig. 1.)

FIG I.

Showing Negative Percents—Estimated Benefit derived from Bible Study compared with Day School Work



It will be noticed that while the curve goes down between 14 and 17 the general course is upward from 18 to 22 with, however, decided fluctuations due, perhaps, to a smaller number to judge from and, perhaps, suggestive of the rapid changes of adolescence. This general course seems very significant. At 13 and 14 there is a great love of the heroic, a keen interest in adult life and the seeking of life's ideals. Has our Sunday-school work met the needs of the life here? Has it supplied enough of the heroic element, or enough material, biographic studies for instance, from which these boys and girls could shape their ideals of life?

In the next period, 15 to 17, where the large per cent. think the Bible work does profit, we are in the intensely emotional and religious period. At these ages we find the most conversions; it is a time of great aspiration and the life is longing for that which is religious and, naturally, the teachings of the Bible are taken hold of eagerly. If we take the same result as shown in Fig. 1 and plot the curve for the positive side, instead of the negative, we see the result in Fig. 2. Now adding to this curve the one showing the per cent. of conversions at different ages, which represents the combined results of a number of such studies and includes statistics of several thousand cases, we find a significant parallelism between the ages of conversions and the ages at which Bible study is thought to be especially profitable, which seems to point in the direction of the explanation offered above.

From 18 to 22, however, the intellectual comes more into prominence. The youth here tries to reason out everything. He does not have that intensely religious feeling which characterized him before and he falls into doubt. Ellis and Hall, in their article on "Sunday-school Work and Bible Study in the Light of Modern Pedagogy," say in speaking of the adolescent, that he is now "able to reason, . . . he is to be driven hither and thither, new problems are to confront him, he is to doubt and to be distracted by conflicting emotions and lines of reasonings."

In the fact that so large a per cent. do not find the study of the Bible profitable during these years have we not the suggestion that the work in Bible study has failed to meet a great life need? In most of our Sunday-schools the work given for these ages is substantially the same as that for the younger pupils and it seems not to satisfy the questioning mind of those in later adolescence. Is it not true that these young people need to be met on a plane at least as high as their own intellectually? They need a good substantial foundation for the faith that is in them. They should have their belief given an intellectual basis. Not only this, but they should have teach-

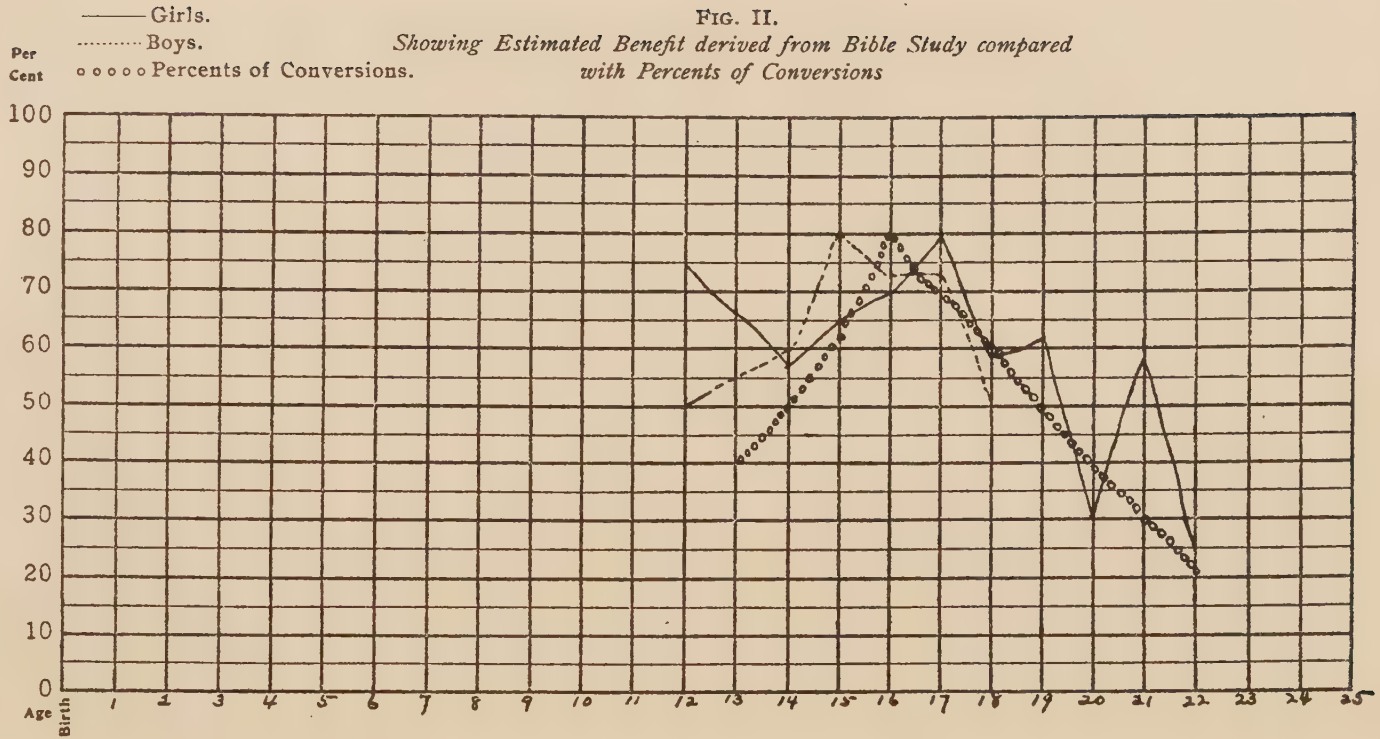


FIG. II.

Showing Estimated Benefit derived from Bible Study compared with Percents of Conversions

ers who understand young life and who can anticipate their needs and meet them without making the fact evident.

Now turning to the consideration of the reasons given why Bible work does or does not profit, we find two hundred ninety-seven papers which give a reason for the view taken. Of this number, one hundred thirty-seven are on the negative and one hundred sixty on the positive side. Of the latter, 28 per cent. say it is more profitable because it helps in their daily lives; for instance, "Bible study prepares for life as much as school work does." 18 per cent. give the fact that both are needed, one stating "without Bible knowledge one would be considered uneducated."

There is quite a tendency to entirely separate the religious and the secular education and to put Bible study apart from life and its daily interests or needs. To quote two or three:— "The two cannot be compared easily. Both are necessary, the one for bodily and worldly interests, the other for the good of the soul and mind." "I think the work in Sunday-school profits just as much in its way as the school does in its way. The school prepares you for going out into the world and getting a living and the Sunday-school teaches you about God, which everybody ought to know about." (17b) "If you intend to be a priest or a minister I think Bible study would be most profitable. If you intend to be a working man or a business man the work in the public school would be the most profitable." (16b) Thirteen per cent. say that it helps in school work, speaking often of the history in the Bible which supplements the work in history in school or of the literary value. The same number speak of the moral and spiritual value and the balance are scattering, such as, "It teaches us about Christ." "It helps us in trouble." "Teaches us to think seriously."

The reasons on the negative side are bunched together and under fewer heads. Twenty-seven per cent. say it is because of poor teaching in the Sunday-school. One girl, nineteen years old, states, "My Sunday-school teacher, while a true Christian woman herself, fails to bring the lesson before the class in a way which is interesting and instructive. Under a competent teacher I think I would receive fully as much benefit from Sunday-school as from public school work, provided I studied, and if I had the teacher I would be glad to."

As a bit of extra evidence on this point it might be added that in another study, which was being made by the writer at the same time this paper was being prepared, regarding the religious experiences of young women, out of 83 papers giving the influences that led these young people into the Christian life only six mention that of the Sunday-school teacher.

Twenty-six per cent. think Bible study is not given sufficient time; either they do not study enough or, as the majority of these state, it comes only once a week. Twenty-four per cent. say that it does not fit for life, speaking of its being narrow in its scope or that it develops only one phase of life. For example, "It is not practical and not necessary to life according to present day standards," or, "We do not come into contact with it in everyday life." Six per cent. find the difficulty in the fact that Sunday-school work is not compulsory and the same number in that it is not systematic. To quote, "No, because the school work is taught by specialists in an orderly fashion, whereas Suuday-school work is done by skipping here and there through the Bible, leaving, for the most part, a very much mixed-up sensation."

If we compare briefly the results among our own boys and girls with those of the other sets of papers we will find them quite different in general tone. Of the eighteen from the negro school, four say "no," giving as the only reason that they have not given it time enough. Of the fourteen others who say "yes," twelve give reasons. Sixty-seven per cent. (or eight papers) state that it helps them in life, and four speak of the spiritual value. All of the Japanese papers are affirmative. Thirty-one give reasons. Fifty-eight per cent. find it beneficial because of its value in their lives. Some of these seem worthy of quotation because of the original expressions as well as discernment.

"I learn mostly about knowledge in school but I can learn culture of the spirit in Bible class. I think, of course, it is more needful to learn culture of the spirit than knowledge."

"Perhaps the help and good influence which the Bible study is giving on my daily life as well as on my spiritual life will be more than I realize. It promotes me to live a better and purer life, conquering myself and following what is taught in the Book."

"I think it profits me, because the work in the Bible class gives us the noble and deep knowledge and thoughts for the brain to give to us the cold council which should be done and thus it is helpful to build up the character. Moreover, the teaching of the Bible is warmer than other ethical teaching because it deals mostly with feeling using the most understandable and confident illustrations to explain the relation between God and us and that we must be true, as well as God is true. Therefore it has power to make the impulse deep and real."

The thirty-four papers from India all say "yes," and thirty of them tell why. Thirty-four per cent. connect it with the life, two say it helps in their other work, and four that it teaches their relation with God. The balance may be classed as mis-

cellaneous. It would be interesting to quote two or three of these papers also, not only for the thought but to give an idea of the manner of expression.

"Bible study profits us much more than our school work because the school work makes us mentally and physically strong while the Bible study teaches us about our souls and the intimate relation between God and man. And it teaches us how to behave with one another. By means of Bible study our character becomes good and polite."

"I think it profits me much in everything. (1) It gives more strength to the relation between God and man. (2) It shows us the way to Paradise. (3) It teaches us how to behave with the other persons and animals. (4) By means of Bible study we can do everything correct and right."

Quite a number of these papers speak of Bible study as giving them knowledge of the future life, which seems interesting when we stop to think what it must mean to these people to get the Bible conception of life after death.

The large per cent. of students from Japan and India who relate Bible study to the problems of life seems suggestive. To them Christianity brings an entirely new world, absolutely different from, and, in many ways, opposite to what they have known before. The Bible opens up to them new fields, with new possibilities, new help, new hope, new love, in fact, a whole new life. The young people *here*, while they may not be Christians themselves, live in the atmosphere of Christianity, enjoy its privileges and results and absorb many of its elements.

3. *Interest in Bible study compared with interest in history and literature or other school work.* In this division, we have four hundred eighty-one answers, eighteen from the negroes, thirty-seven from Japan, thirty-three from India, and three hundred ninety-three from the states. Of the negroes, fourteen answered in the affirmative and four in the negative; fourteen of the whole number giving reasons. The only explanation offered on the negative side is that they have not given it time enough. On the affirmative, there are five reasons, each given twice, as follows:—"The characters are greater than found in other places." "It teaches us how to live." "It tells of God." "It tells us of the future life." "It is good history and literature itself."

The thirty-four papers from India are all affirmative, and thirty tell why. Of these, 50 per cent. say it interests them more because it teaches them how to live: for instance, "Yes, my Bible interests me very much. Whenever I find any difficulty in doing something good or I feel tedious or lazy, I take my Bible and read it carefully. When I read it carefully I find that there is no other book which is so interesting as my

Bible." "No doubt I find my Bible study very interesting. I take especial delight in reading Bible because it tells me to do my duties faithfully day by day and teaches me to depend on the Lord. Hence this is more than any history of the world. Again, the English Bible in itself is the grand literature f English. The language of the Bible I find very simple and at the same time very elegant."

Four, or 13 per cent., connect it with their school work. Three say it is always new and therefore interesting and two speak of its teaching of the future life. For instance, this: "We can only know from our Bible about salvation. By reading the Bible we become hopeful about our salvation and rising from the dead and we shall see all our dear relatives who have gone to their heavenly homes. Such things are not written in other books. Other books may be interesting but are not such as our Bible."

Of the thirty-seven Japanese papers, thirty-two say "yes," three say "no," and two are not definite. Only fifteen give reasons and they are for the most part, scattering. To give examples: "Truth is not all gone; it is always interesting. It contains deeper and broader truth." "It has relation to other studies."

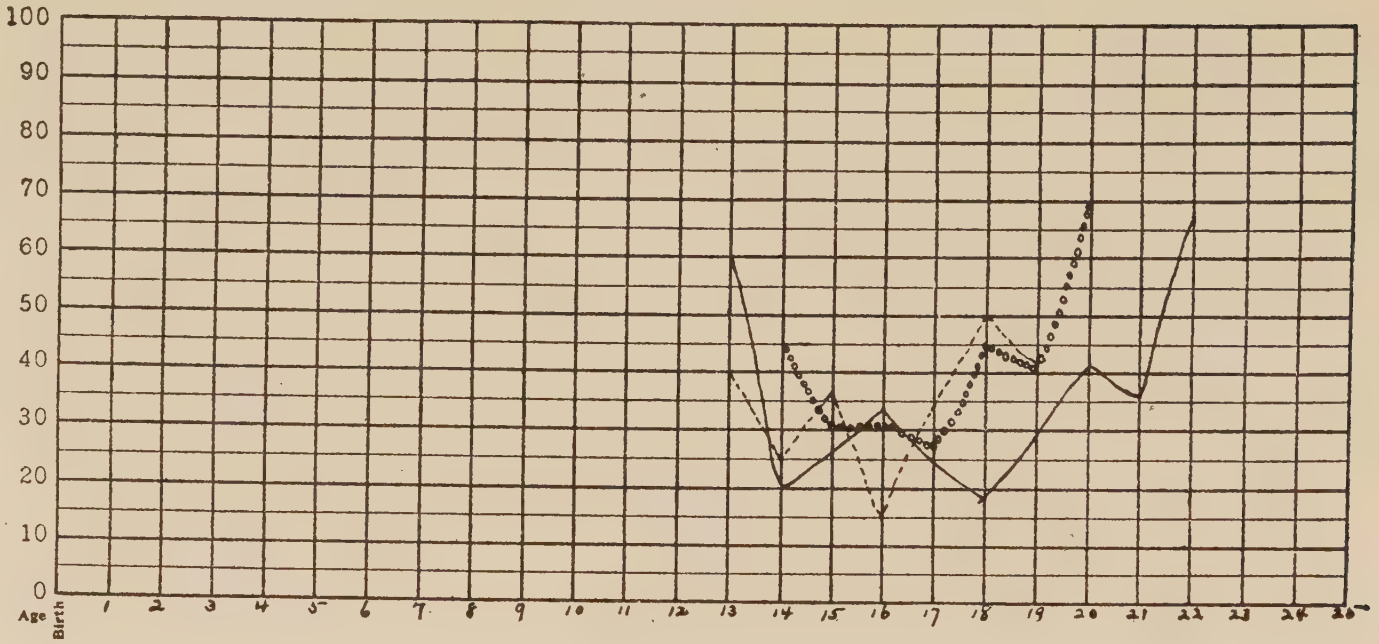
Turning now to that larger group representing the states (three hundred ninety-three in all) we find two hundred eighty-seven are girls and one hundred six are boys. Of the whole number, one hundred sixteen or 30 per cent. answered negatively (29 per cent. of the girls and 31 per cent. of the boys). Here also we are surprised at the large per cent. who do not feel as much interest in the Bible as in other studies, and in looking for the solution we try again to discover the difference, if any, at different ages. Fig. 3 will show this result in more vivid form than the mere giving of percentages. Here we find the curve perceptibly lower from 14 to 18 with the girls and from 14 to 16 or 17 with the boys, the general directions being the same as those of the curves in Fig. 1, as is shown in the accompanying diagram.

Herbart says that "interest is the mainspring of attention and memory." It certainly must also be a large factor in determining the amount of profit we get out of a certain subject and this study would seem to bear out that fact. We might raise the question here as to whether they lose their interest in Bible study later because they fail to get benefit from it, or whether they cease to be benefited because they lose their interest.

Of this entire group two hundred eighty-four give reasons, two hundred four on the affirmative side and eighty on the negative. Of the affirmative, 31 per cent. say it is because

FIG. III.

Negative Percents, Showing Interest in Bible Study compared with Estimated Benefit derived from Bible Study



the history and literature in the Bible is just as good or better than that found in any other place. Ten per cent. are interested because it tells of Christ, and the same number because of other interesting characters. Of the negative, 33 per cent. find the explanation in the fact that it is not carefully studied and they do not understand it, and 30 per cent. because of poor teaching. Nine per cent. think it is not given enough time.

4. *Enjoyment of Bible characters compared with enjoyment of other historical characters.* The Bible characters mentioned are Moses, David, Paul and John and the historical characters are Washington, Lincoln, Gladstone and Cromwell, and, of course, in those papers sent to foreign countries other characters with whom those young people were acquainted were substituted. All told, there are four hundred seventy answers to this question, sixteen from negroes, thirty-three from India, thirty-six from Japan, and three hundred eighty-five representing our own schools. Among the negroes, the sixteen answers are all affirmative. The reasons given are that they are more heroic or that they represent truer manhood. Of the thirty-three papers from India, one makes a distinction between their own and other national characters, saying the Bible characters are more interesting than the national characters of other countries, but that he enjoyed their own men of history better than the men of the Bible. The other thirty-two answered affirmatively, 51 per cent. giving as the reasons, the greater characters and more unselfish lives, and 31 per cent. mentioning the fact that they were men led of God. Many of these would be interesting to quote but are too long.

Thirty-three of the thirty-seven papers from Japan say "yes," three say "no," and one thinks they cannot be compared. The negative reason is lack of knowledge, and the affirmative can be grouped under two heads—those who speak of the greatness of the characters and teachings of these men, and those who mention their bravery and faith.

Of the three hundred eighty-five replies from the schools of our country, two hundred seventy-nine are girls and one hundred six are boys. Twenty-seven per cent. answered negatively —32 per cent. of the boys and 24 per cent. of the girls. One hundred fifty-five give reasons for their opinions, seventy-seven of them being affirmative and seventy-eight negative. Of the affirmative, 30 per cent. express the thought that they are just as enjoyable on account of their good, noble or beautiful characters; 16 per cent. find the reason in that they were men of such great influence, or are such splendid examples for us. Some of the other reasons given in small numbers are: "They are just the same class of men as the historical characters."

"They give an idea of life so long ago." And a few others say that they enjoy comparing them with men of our time; for instance, "They are interesting as people in a growing age —while the historical characters are interesting as people in a grown and Christianized age." Or, "It is interesting to know the customs and characteristics of men of that time and contrast them with the men of to-day." Six per cent. of them make a distinction between the historical characters of our own and other countries, saying that the men of the Bible are more enjoyable than historical characters of other nations, but that our own men of history are more interesting than the Bible characters. This may not be significant in any way, but it certainly is interesting as a bit of national pride or patriotism.

The negative reasons fall mostly under three heads: 39 per cent. say they do not know enough about them; 28 per cent. say they are too distant and unreal and do not seem human; and 18 per cent. state that they do not have a direct bearing on our government and questions of our day.

5. *Part of the Bible most enjoyed.* Here we shall discover some interesting and significant differences between the nationalities. The young people from the schools of this country show a decided preference for the New Testament, the girls betraying a rather more marked preference than the boys. The plotted curve of Fig. 4 shows the result of this question as the papers are arranged according to age. The result agrees, in general, with the study made by Dr. George E. Dawson in his book, "The Child and His Religion." In his study the percentages do not run so high at first. Beginning, at 14 or 15 years, at about 50 per cent. they rise gradually to 98 per cent. with the girls and 90 per cent. with the boys. This is doubtless more correct as many more cases were considered in his study than in this one. But, in any case, it shows that the decided preference is for the New Testament during these adolescent years. Is this not what we would expect when we remember that this is the time of the awakening of religious feeling and of the rapid development of the altruistic emotions? The New Testament is full of altruism, while the Old Testament has very little of this particular type of teaching. To quote from Dr. Dawson's book: "Fear, anger, jealousy, hatred, revenge, etc., are conspicuous attributes of God and men in the Old Testament; while sympathy, compassion, trustfulness and love are the prominent attributes of God and men in the New Testament." Furthermore of the three hundred forty-seven making a choice, one hundred seven mention a part or the whole of the life of Christ, which is the very personification of love and altruism.

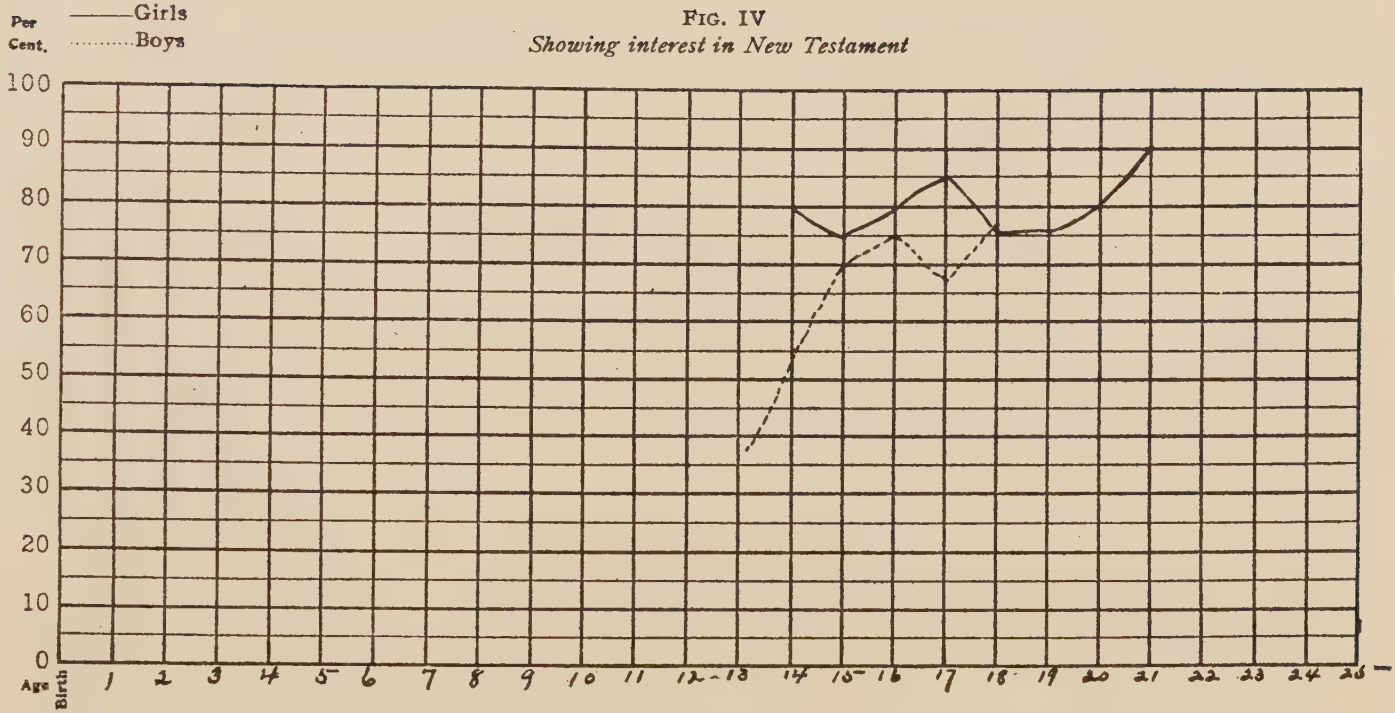


FIG. IV

Showing interest in New Testament

Referring again to the article by Ellis and Hall, we find this statement: "This is the time," speaking of the adolescent, "for him to begin to understand rightly the sacrifice of Christ, the New Testament idea of the Christian ideal;" and the preference of young people, so far as this study would indicate, is for just that type of teaching.

Of the negroes, 82 per cent. choose the New Testament, and of the Japanese papers, 65 per cent. choose the New Testament, 25 per cent. the Old Testament and 10 per cent. mention a part of each.

When we come to consider the papers from India we find only 20 per cent. who prefer the New Testament, 8 per cent. the Old Testament and 72 per cent. who mention both Old and New Testament books, with the Old Testament books mentioned first almost invariably; 46 per cent. of the whole number mention Proverbs and 47 per cent. speak of Psalms. This is characteristically different from any of the other sets and significant of a different type of mind or of a different stage of development. The Hindoo mind is certainly much nearer the primitive stage of development than the Saxon or Japanese. As the race develops religiously the stages are primitive nature worship, then the legalistic stage, represented by Hebrews, and later the aspirational stage represented by Old Testament prophets and most perfectly in Jesus Christ. Now is it not possible to explain this love for Old Testament literature by the fact that these Hindoo people are still in the legalistic stage, but are rapidly rising, through the effects of Christian missions, into the aspirational stage, evidenced by the fact that the majority of them mention New Testament books along with the Old Testament? Another possible explanation of their love for Proverbs is found in the thought that these bits of wisdom form a code for moral life. The idea of morality, as a part of religion or connected with it in any way, is doubtless new to their mind and, moreover, they have not been brought up in the atmosphere of moral teaching and surrounded by Christian men and women whose lives are constant examples of true morality, so that they are eager for all the light they can get in the line of standards for moral conduct.

Before we pass to the final suggestions one other point of general interest might be mentioned. As these papers came in, it was noticed that they differed materially according to the section of country from which they came and so care was taken to keep track of this point. It seems worthy of note that taking them in groups, representing the east and the west, the percentages of negative replies, in response to question 2, as regards the benefit received from Bible study in comparison with that derived from day school work, are quite different. Of the two

hundred forty papers from the east 51 per cent. answer negatively, and of the one hundred three papers from the west, only 17 per cent. answer negatively.

Sunday-school workers tell us that the methods in the west are in advance of those in the east. Though the improvement is comparatively small it would seem that we are warranted in saying that this great difference in attitude is, at least partially due to this fact. If such a change can be evidenced, partly as a result of this betterment in Sunday-school methods, what an encouragement it should be, and what an impetus to advance along all lines of religious education. In this connection it might be added that of the total number of those who have been in Sunday-school, 41 per cent. answered negatively, and of those who have had some work in a regular systematic Bible class, only 15 per cent. answered negatively.

In attempting to interpret the foregoing facts we must acknowledge that the full purpose of biblical instruction seems not to have been realized.

The Bible is a wonderful source of rich and powerful material. As Lyman Abbott has said, "The Bible is not a Book but a library. It stands as a revelation of God unparalled for its strength and beauty by any other of the world of literatures." Not only this, but it contains the message of life to mankind which is a "clearer, fuller and farther-reaching" message than has been proclaimed before. In the words of Charles D. Warner "The Bible is the best illustration of the literature of power for it always concerns itself with life; it touches life at all points. And this is the best test of any piece of literature; its universal appeal to human nature."

With this conception of the Bible, and with our purpose of producing, through its study, strong, self-reliant Christian characters, we must, in the light of this study, ask ourselves the questions: Wherein have we failed to meet our conscious aim? Is anything being done, and what more can we offer to better the methods of religious education? While the returns are not adequate in number to warrant final and positive conclusions, they do seem of sufficient importance to justify the pointing out of certain inferences which they suggest.

In regard to present efforts toward reconstruction of methods, the new system of grading the Sunday-school should be mentioned. The course of study planned in connection with this gradation forms a systematic, progressive education from the primary to the adult department. Under this plan, teachers as well as pupils must be graded, The work is also made practically compulsory, because failure to pass the examinations means failure to receive the diploma and be promoted with the class.

The question of time presents a greater problem. When the young people themselves recognize this difficulty, however, and give it as a reason why Bible study does not profit them, should not Christian people face this situation and all that it involves and demand that religious instruction be given its proper place in the education of our youth? Could not other organizations, such as the Young Men's and Young Women's Christian Associations correlate their work with that of the Sunday-school and arrange to give supplementary courses in Bible study during the week?

The fact that so few (11 per cent. of the whole number) connect Bible study with life in a helpful way, seems suggestive of an awful gap that is growing up in the minds of our boys and girls between religion and life. Has not much of our lesson material been at fault here? Hubbell in his book, "Up From Childhood," says, in speaking of the work of religious education, that "many things are offered that are not closely related to the life of the child, with the result that he forms the habit of receiving good things without any thought that they are to be practised in daily life. The test has never been, does this information meet the needs of the growing child." The result of this study would seem to emphasize the truth of that statement. Have we not greatly neglected the vital things and taught a type of salvation that utterly ignores the relation of religion to the physical and instinctive life, trying to regenerate humanity through the intellectual only? Bible study is for the purpose of teaching us of the Christ and the Christian religion—which is a life to be lived. Jesus Christ said, "I am come that they may have life and may have it abundantly," but so far as the results here would indicate, the majority of these students have failed to get that message. In talking with Christian Association secretaries of wide experience, the thought that it is only the Bible work which touches life that really counts, was often expressed. In the words of one of them, "The girls want something that is definite and vital for their everyday living."

Dr. Luther Gulick, in his article on the Religions Significance of Group Games, makes this statement. "The religious leaders who have been presented for the hero worshiping instinct of the Saxon boy have been inferior, on the whole, in masculine respects, to those presented who were not religious leaders." A little further on, in speaking of Jesus Christ in this same connection, he says, "We constantly think of Christ as the embodiment of meekness, non-resistance and of all the passive virtues. This is true, but I think we have wholly misrepresented Him if we fail to bring into equal prominence His life of active, objective righteousness, His tremendous denun-

ciation of hypocrisy and wickedness, His constant doing of good for others . . . His life represents objective righteousness as well as subjective righteousness." Is it not possible that we have made much the same mistake in avoiding the struggle with adverse circumstances; the objective side of these other characters, even though they failed occasionally, that we have made in avoiding the active denunciatory work of Christ, and thus have failed to make them impressive as men of history? Have we not in this very fact the explanation of the attitude of so many in comparing the men of the Bible with other historical leaders? Have we not thus made these men rather mystical and unhuman? One girl expressed this very thought in the following: — "They are too saintly and far away. Washington and Lincoln made mistakes that we can understand."

One other characteristic that should be noted is the individualistic element. The full force of this could not be shown in the report of the investigation but was very noticeable in looking over the returns and seemed very significant since it was so prominent throughout the study. The thing that greatly impressed one was passed without notice by another. The part of the Bible that made the greatest appeal to one was apparently uninteresting to others. Is this not a suggestion to those of us who would teach, to do more individual work? Augustine saw the necessity for this and said, "Each pupil is to be treated according to his individual needs. Examine him and make his present error a starting point . . . It is the individual pupil who is to be taught." If we would make our Bible work touch life we can only do it through reaching the needs of the individual life and not "en masse." This is the example the Great Teacher set before us. He saw the multitude as so many individual souls and because He saw them as such "He was moved with compassion." It was through the winning of individuals that He founded His kingdom upon earth.

FOUR HUNDRED FEEBLE-MINDED CHILDREN CLASSIFIED BY THE BINET METHOD[1]

By Henry H. Goddard

One year ago at our meeting at Chippewa Falls I presented a paper in which it was attempted to show how we might develop a classification based on tests of mental ability, and which would have some uniformity, upon which we could all agree. I outlined at that time a decimal system based upon a set of tests devised by Prof. Binet of Paris. The Binet Tests then referred to were those published by him in 1906. In 1908 Prof. Binet published a new set, what may be called the final summing up of his many years of work in the study of methods of measuring intelligence.

In these tests, a part of which I have translated and published in the Training School for Jan., 1910, Binet has worked over and standardized his tests until he has a very definite and apparently accurate "Measuring Scale for Intelligence," as he calls it.

By carefully studying normal children and finding out what they can do, and picking out, of all the things that he has found, those that are so fundamental and human that they do not depend upon training, he is able to say to us, any normal child who has lived in the world three years is able to do such and such things. He gives five tests for each year. First, such a child of three can point to his nose, his eyes, his mouth; he can repeat a couple of simple phrases as, "it rains, I am hungry;" he can repeat two figures; he can enumerate more or less of the things seen in a picture; and lastly, he knows his own name. At the age of four he can go a little farther. He knows whether he is a boy or a girl, which he did not know at three. He recognizes a knife, a penny and a key. He can repeat three figures now, and he knows the difference in length between lines that are an inch and a half and lines that are two inches long, and so on through the years up to and including thirteen.

As you know, we have been studying, testing and examining the children at Vineland for nearly four years. When this

[1] Read at Lincoln, Ill., Meeting of the American Association for the Study of the Feeble Minded. Published with the consent of the Journal of Psycho-Asthenics.

set of tests appeared, we at once concluded that the best thing to do would be to put our children systematically through the tests for the sake of testing the tests as well as finding out how our children would rank in regard to them. That work has recently been completed, and it is for the purpose of giving you some idea of the value of this method that I am going to present to you the results of that study.

We find our children divide up into the following groups. Thirty-six have the mental capacity of a child of one year, thirty-seven the capacity of a child of two years, forty of three years, thirty-seven of four years, forty-two of five years, thirty-nine of six years, forty-seven of seven years, forty-four of eight years, thirty of nine years, fourteen of ten years, five of eleven years, and seven of twelve years. There are none who test above twelve.

Having arrived at these divisions, our next problem was to study the results in the light of our experience with these children. The first thing was to call to our aid the experience of all those in the institution who knew these children and had known them for some years. At our executive meeting, composed of the heads of all the departments of the institution, these lists were read, one at a time, and the members present were asked to express their opinion as to whether the children given in any one list seemed to them to be all of about the same mental capacity; whether, any in the ten year old list, for example, seemed to them to be much higher or much lower than others in that list. The result of this method was as follows: as soon as the list was read, some one immediately raised a question in regard to certain cases. This, was, I believe without exception, always answered by others in the room, that the objection was not a valid one, that the child in question was of about the same grade as the general run of the group. Perhaps the person who thus answered would, on the other hand, suggest some other child that he thought did not belong to the group, to which again others would make the same answer. In other words, the outcome was that no child was entirely thrown out of the group by even a majority of those present, to say nothing of a universal condemnation of the result.

I next took the same procedure with the teachers of the school, having them all together, I read the lists carefully, and asked them to raise any objections that occurred to them to grouping all of these children together. Precisely the same thing happened as with the heads of departments. Certain teachers felt that some child, or several children, perhaps, were too high or too low and did not belong to the group, but always some one or more came to the defense of the classifica-

tion as it was presented and the result was that we decided that there was no exception to be made to the grouping as determined by the Binet tests.

Such a result as this was very surprising and encouraging. Such a result was not wholly unlooked for by us because, while giving the tests we had come more and more to feel that Binet had certainly evolved a very remarkable set of questions, and that they did work out with amazing accuracy, and I believe it is true that no one can use the tests on any fair number of children without becoming convinced that whatever defects or faults they may have, and no one can claim that they are perfect, the tests do come amazingly near what we feel to be the truth in regard to the mental status of any child tested. At least I believe that it is correct to say that the classification as we have made it in accordance with these tests is entirely satisfactory to all of the people in our institution to whom the result has been submitted.

But such a test as this, by appealing to the opinion or it may be said, the memory of a group of people, however well they may know the children, valuable as it is, is not quite conclusive. We are, however, not limited to this test of the result.

Last fall when we began the testing, we also began another system by which we would be able, as we hoped, to check up the results and correlate two different lines or kinds of estimates, and come at something that should be scientifically accurate. The first step in this was to prepare blanks, containing a rather long and, as it seemed to us at the time, a rather exhaustive list of questions in regard to the children. The plan was to send these around to every normal person on our grounds who had anything to do with any child, and ask him to answer such questins as he found he could answer. The plan was later modified and improved, as we believe, by sending one of my laboratory assistants to interview each attendant or employee and write down, at his dictation, what he had to say in regard to the child. If this had perhaps some slight disadvantage, it undoubtedly had the great advantage that the assistant was able at all times to explain what we meant by the question and to elicite definite answers which we would not otherwise have obtained. In no case was any person urged to try to find an answer to any question, but all were encouraged to report everything for which their experience had qualified them.

In this way we obtained from two to fifteen separate and independent comments on each child. These comments are sometimes conflicting, but the conflict can usually be explained. For instance, one person may say that a child is honest, the next one says that he is not. In that case we find that one

person has had some experience with that child which the other has not had.

Our next step was to get all the data together where it could be seen at a glance. Large, specially ruled sheets were prepared with the headings or catch words referring to each question on our separate blanks, and columns vertically ruled for the name of the person giving the answer. Then the whole was gone over and the answers in abbreviated form were transferred to this large sheet, so that when that work was completed we had a large sheet for every child in the institution, and on that sheet we have the opinion on that child expressed by every person who knows anything about him.

The final step in the process is to put together the results as obtained by this latter method, and the results of the Binet tests. For instance, we must find out whether the child who, according to the Binet tests, has a mental development of a ten-year-old normal child is really better in his whole history in the institution as tested by experience, than the child who, according to Binet, would rank as nine years of age mentally. The result as far as we have obtained it, I shall detail to you presently. But first I must tell you that we have still another correlation that we have been carrying on. As you know, we are testing the children in the Laboratory by methods of our own, by methods that we have picked up here and there. These are, perhaps we may say, mechanical methods, or better, methods of motor control, or methods of testing the intelligence in other ways than by appealing directly to the intelligence and having the child answer questions. Our plan included, therefore, lastly, the testing the children by all of the different methods, for example, by the methods that you saw at Chippewa Falls last year, and that you can see in the Laboratory here at Lincoln, and then correlating those results with the Binet tests, and the results of experience as tabulated on the large sheets. For example, we must determine whether the ten year old boy as classified by Binet does better work on the Ergograph than the nine year old boy; whether the seven year old can do the Form Board in quicker time than the six year old; whether the four year old is a little better with the Ataxiagraph than the three year old (all of these being mental ages of course), and so on through our entire list of tests, or any others that we may devise.

I had hoped to have a great deal of this done at this time and be able to present to you a conclusive argument on this question of classification. However, the work has proved to be vastly greater than I had imagined, and although there have been three of us at work on it all of the year nearly, we have still a great deal to do. Indeed, it will take probably at least

another year to get anything like a complete statement of results along all these lines.

However, I am able to present you a few things which will give you some idea of the general trend of the matter and I hope throw some light and enable you, perhaps, to take some action on this matter of classification.

Perhaps I may take the Form Board first, as the simplest and well illustrating the methods with all of our special tests of motor ability. Having had every child in the institution try the Form Board and noting the time in which he was able to place the ten blocks in their holes, we arranged those on a curve according to the mental age of the child as determined by the Binet test.

The result is shown as follows: Those who are two years old mentally require 150 seconds on the average to do the Form Board. Those who are three years old require 70 seconds, the four year olds 50 seconds, the five year group 30 seconds, and so on down gradually as you see, until those who are twelve years old do the Form Board in 13 seconds. We thus get a very pretty curve and a very clear confirmation of Binet's estimate. We have been able to carry this a little further. You will find by reference to the Binet test that at the age of five he says a child should be able to copy a square, at the age of seven he is able to copy a diamond. This is, of course, the average. As individuals, we find, of course, some can copy the diamond earlier than seven and some not until later. Some can copy the square as early as three years, and some not until seven or nine. Taking all of these cases and drawing the curve for those who can do only the square at the various ages, and those who can do the diamond, and then comparing that with the time it takes them to do the Form Board, we have some very interesting results, which read like this. Those children who can do neither the square nor the diamond require a longer time to do the Form Board than the average of all the children. Those who can do the square but not the diamond do the Form Board in less time than those who cannot do the square. Lastly, those who can copy a square and a diamond both, can do the Form Board in the quickest possible time, age for age. And thus again we have a very neat confirmation of the correct estimate of the children according to the Binet method.

Several other tests have been carried through, some of them not quite worked up as yet; I will not trouble you with them at the present time.

Let us turn our attention now to the much more difficult problem, but one which I feel sure will appeal to you more strongly, that of correlating the results of our study as con-

densed on the large sheets, with the Binet ages. We have as yet really finished nothing in this line of work, but I am able to give you a little on the first topic that we took up. It seemed that the question of what these children were *actually doing*, *had been trained to do*, would be one of the very fundamental things in this whole problem. We have, accordingly, gone over the sheets and determined, on the basis of all of the answers by the people who work with them, what each child can do, and what he is actually doing, and how he is doing it.

Before following this through, I must call your attention to a difficulty that we met at the outset. We soon realized that since each group contained children who were actually anywhere from twelve to fifty years of age, we were facing a very interesting problem, as to what was the difference between children of the same mentality some of whom had lived in the world twelve years, while others had lived twenty years. In other words, assuming that a child could remain ten years of age how much could he learn to do? Of course in considering the normal child we have no basis for judgment concerning one child, because while an eight-year-old child is learning to do one thing he becomes nine and ten and eleven before he has learned very many things. If we could take a thousand normal children of say ten years of age, all of whom had had different opportunities, and had been taught different things, and group together all of the different things that they have learned to do, we would have some idea of the meaning of a child's being ten years old, and we would have something that would be valuable to our present study, because we would then know what to expect of these children. In other words a child who tests according to the Binet test ten years of age, but is actually fifty years old, may be expected to do a great many things which will quite surprise us, because we have never happened to know of a ten year old child that could do all of these things.

This is exactly what we find, and our first impression when we consider any one of these older children, is invariably, that no normal child of that particular age could really do all those things; which is quite true, no *one* child could. Furthermore we found that this fact complicated the matter very much when we came to attempt to sub-divide these into groups according to what they could do. We found for example, that a child who was seven years old mentally but forty years old in experience could do just as much and just as well as some other child who was ten years old mentally and only twenty years old in fact. So that in order to get some accurate idea as to what mental age meant in the training of these children, we had to cut out all of those who were beyond

the training period, consequently we have considered those who are under twenty, and we find that a nine year old child under twenty does better work than an eight year old child under twenty, whereas, as already said, we might not necessarily find that a nine year old child would do as good work as some other child who was mentally seven years old, if the former were under twenty while the latter were nearer thirty.

Taking these things into consideration we find we have the following.

In the one year group we have the children who do not talk and do not play.

In the two year group there are a great many that play a little, although it might perhaps be questioned whether it should be called play, and would not more wisely be considered simply irritability. When we look at the older group, that is, those above twenty in this two year grade, we find some who attempt some sort of simple work.

In the absence of a long past history of these cases we wonder whether it may not mean that at one time they were of a higher grade, but now on account of their age have degenerated and lost so that they cannot pass the Binet test at any higher age than two.

In the three year group we find many that play, and all talk. This seems to make a rather sharp line, because as we said in our two year group there are none that talk at all.

In the four year old group we find about the lowest of those who do any work. Very little is expected from any of these children who are under twenty years of age. Those who are over twenty have learned to do a *little*, but still not very much. They are about what we have called under the old classification, low grade imbecile.

In the five year group we find the emphasis laid upon those who *help* or who *try*. One boy tries to make beds, another one does kindergarten work, another cannot learn any work, another one can "sort clothes," which means that when he is given an article and told what it is he can put it into a certain box.

In the six year group we find a *great deal of mention* made of the children who help do things; not that they make beds but they help make beds, do kindergarten work, or iron an apron.

In the seven year group we find expressions like this, "little things in the cottage," "rub floors," "dust," "do errands," "little errands," and so on through the list.

We find a distinct improvement as we pass into the eight year group. There are children here who do errands, who do

the simplest sort of barn work, the school children who can perhaps mend stockings or sew a little, or ordinary work of sweeping, or emptying the garbage box.

We find in the nine year group children who can do pretty good routine work to which they have been trained, but they still require careful supervision. They can, for instance, help around the house and around the barn; they can do errands, they can pile up bricks, they can take care of a bath room perhaps, or do simple ironing, or mending.

Of those who grade to the mentality of a ten year old child, there are fourteen. There is on the whole quite a noticeable difference between these children and the younger ones. The work that they do is rather higher, they require less supervision, so that it is plainly noticeable that they are older than those in the lower group.

In the eleven year old group we find only *five* individuals, but they are children who, for example, can care for the supervisor's room *entirely*, can take care of *animals* entirely satisfactorily, and who require little or no supervision. They are it is true not quite as expert or quite as trustworthy as those a year older, and yet the difference is very little and the two ages can probably be very well classed together.

It will be found noticeable that there are only seven who grade twelve years of age, but among these seven are those who can, for example, weigh out groceries, use machinery of various kinds, do housework as well as anybody can do it, and who require practically no supervision in doing the things that they have been taught to do. Such are our results as far as we have worked them out.

Now in the light of all this, we might have the following classification for these children. I believe that the one- and two-year-olds probably come under the group that we have always called idiots. These might again be sub-divided for those who wish to draw a closer line, and use the old expressions into the low-grade idiots—the absolutely helpless, probably under one year of mental development, the middle idiots—those who are one year old, those who can help themselves a little, perhaps feed themselves, and the high grade idiots those who can not only feed themselves, but can discriminate somewhat as to what is good to eat.

Then we would perhaps have the imbecile group, including the ages from three to seven, again to be sub-divided into the three and four year group—the low grade imbecile, the five year group would be about the middle grade imbecile, the six and seven year group—the high grade imbecile. All the rest would come under the highest group which has been called in a good many places feeble-minded in the specific sense.

These could again be sub-divided, the eight and nine year old into the low grade, the ten year old the middle grade, the eleven and twelve year old the high grade. I would like to suggest further that it is extremely desirable that we have a new word instead of "feeble-minded" for this high grade group. Feeble-minded is universally used in this country now to cover the entire range of mental defectives. Our institutions are institutions for the feeble-minded. We need a name for this high grade group for many reasons. First, as suggested, to distinguish it from the whole group when we wish to speak in a specific sense; secondly, we need it very much in order to make the public understand that there is a special group of children that requires very special attention.

I presume no one in this audience, certainly none of the superintendents of institutions need to be reminded that the public is entirely ignorant of this particular group. Our public school systems are full of them, and yet Superintendents and Boards of Education are struggling to make normal people out of them. One of the most helpful things that we can do, would be to distinctly mark out the limits of this class and help the general public to understand that they are a special group and require special treatment,—in institutions when possible, in special classes in public schools, when institutions are out of reach.

Two words have been suggested for this group, the one being the word "proximate" with the underlying thought that these children are nearly normal. The other word proposed is a Greek work, the noun from the Greek word meaning foolish, "moronia," and these children might be called "morons." Fool or foolish in the English sense exactly describes this group of children. The Century Dictionary defines a fool as one who is deficient in judgment, or sense, etc., which is distinctly the group we are working with. I believe the etymology is correct and the derivatives would be easy. We would have moron for the noun, moronia for the condition, moronic for the adjective, and so it would seem to answer every requirement.

Furthermore, it will be seen that such a classification as this gives nine classes when we sub-divide it, with ten as the upper limit, the normal child. Of course, we do not go into the question at all as to the degree of intellectual capacity of that higher group. We know we have there backward children, and normal children, that is, children who are fully up to the average, and children that are above the average, but from our standpoint those children are all normal, and there is no reason for them to come into our care.

In conclusion I may state one or two points of some interest by way of further explanation, and as the result of our study.

We should certainly emphasize here what is known to all of you, that the old terms of classification, while of interest to physicians, perhaps, are of no practical value to us, and in accordance with this classification, it could be made very clear that, for instance, a microcephalic child might be a moron, an imbecile, or an idiot, a hydrocephalic the same, and so on through the list. In other words, these words do not help us to know anything about what the child is capable of in the way of training and development,—the one thing that we in institutions wish to know, and the one thing that the public is clamoring to know, the one thing that parents ask when they come to us.

I think that we have all felt that of all the old terms of classification, "Mongolian," was the only one that gave us very much of an idea of the grade of the child. It will be interesting in that connection to note that of all the mongolians, fourteen, in our institution, one is age three, nine are four years in mental development, four are of the fifth year, and two in the seventh year. We recognize at the institution that these two have been specially trained and are decidedly above their grade, and we have great fears that when the very special, individual training that they have received, coming as they do from wealthy families, is relaxed for a moment they will fall back in grade. It is clearly seen then, that on the average a mongolian is of the mental development of a four or five year old child. In other words, he is, as we have always said, a middle or low grade imbecile.

Another point that has interested us greatly is the question of the so-called moral imbecile. We have interpreted this expression very loosely, and included in this group all those children that give trouble because of their inability either to understand the simplest moral law or to conform to it at all. It included then, all those cases who show marked sexual disturbance, except masturbation which is perhaps a mere habit, and thieving or untruthfulness. The striking thing here is, that of the twenty-three cases of this sort picked out for us by the Head of the School Department, Mrs. Nash, fifteen are in the nine year old group, five in the ten year old, two in the eleven, and one in the twelve. I believe that this is not accidental, but is one more confirmation of the accuracy of the Binet Classification, and secondly, it conforms to the psychology of the situation. If we look back for a moment to that much discussed question of the moral imbecile, we find that the best explanation of it is that as we all know the child is born with certain instincts, other instincts develop as the years go by until all of those things that are particularly human have had their time and have either developed and become fixed

habits of life, or have been modified or conquered. The reason for the overcoming and destroying of such instincts is found in the fact that these instincts have developed when man was in a more primitive condition, and these things were at that time useful to him. For example, before men came to live together under the conditions of modern society, lying and stealing were virtues, and consequently became instinctive, that they are instinctive in us to-day no one who is frank and honest with himself for a moment doubts. We have all had the impulses to do these things and probably very few of us have escaped becoming for a time at least victims of these instincts. It may be said, perhaps, without much doubt that we have all been liars and thieves for a short period at least in our lives, but fortunately owing to good training, good environment, we got through that period without disgracing ourselves or the family, and we learned to be moral. But it must be rememberd that we did *learn* to become moral, that we overcame these instincts because we were taught and had minds enough to learn what was taught us, to see the consequences, and appreciate the importance of our doing as society prescribes. Had we been lacking in the ability to reason that out, to note cause and effect, etc., we never would have learned the very important lesson.

Now if we are to take our results here literally, and we may for the moment at least take them literally for the sake of argument, we would say this: those instincts that lead the child to become what we loosely call a moral imbecile, ripen about the age of nine years, now if a child is arrested in his development at just about that time then he is a liar, a thief, a sex pervert, or whatever else he may be, because those instincts are strong in him, having already come to full maturity, and the reasoning power, the judgment, those faculties or processes which lead him to learn to control those instincts have never developed and cannot. Had he been arrested in his development a year or two sooner, he would not have been a moral imbecile because the instincts that lead to it had not developed. On the other hand, had his arrest been delayed for two or three years, he would have developed sufficient reasoning power to enable him to overcome and control those instincts, and so again he would not have been a moral imbecile, but the arrest coming at just that critical period of nine, we find him with all those tendencies exceedingly strong and no power of control.

Such are some of the results and inferences from this study. They need very much revision and consideration, but it seemed best to give you the matter as it stands at present.

INDUSTRIAL EDUCATION IN CHICAGO

By May Wood-Simons

CHAPTER I

Social Conditions Creating Demand for Industrial Education

Causes, that are leading to a general demand for industrial education, must be sought in two directions. First, in those changes in economic organization that have destroyed the old form of apprenticeship; second, in the force of international competition, that is compelling each industrial nation to utilize not only its raw materials but to perfect, as far as possible, its productive labor in order to maintain itself against competition.

The early apprenticeship system, fostered by the guilds, was forced practically to disappear with the advent of modern factory production. The busy workshops of the great industries, with their extreme subdivision of labor, are not the places in which a boy can be trained in all the phases of his trade and become an all-around craftsman.

With a large and expensive plant and subjected to close competition employers are primarily interested in the production of profit. That the product may be as large as possible, an efficient workman is required to handle each machine. With the present organization of industry, the responsibility of each workman in factory or shop lies in his completing that part of the productive process that falls to him.

With every man in the industry thus engaged in producing there are none who can give time to the instruction of the beginner. The old time apprentice, who was taught the intricacies of the entire craft by a masterworkman, has no place in the modern factory. The beginner is started upon some special branch, to handle a single machine. Here he is expected to develop as quickly as possible into an efficient machine tender, a valuable producer. When an expert in handling one machine he will be kept there. To learn a new machine means a slower rate of production, even possible derangement of the machine itself and the spoiling of some raw material. There is little or no opportunity for the beginner to master all the processes of the trade in which he is engaged. Only by going from shop to shop and often from town to town does he get a

chance to gain access to a new machine and thus get a wider outlook.

Among the boy graduates from the Crane Technical High School, Chicago, who go into the works of the Western Electric, frequent complaints are made that they never have an opportunity either to learn or scarcely to see what is being done outside their own little department.

Yet there are few industries in which a very large proportion of the men employed are not required to possess a large amount of skill. This is especially true in metal working, in the making of all glass products and in the printing trades.

That much difficulty is experienced in various industries in obtaining or training skilled workmen is shown by the recently published report of the New York Department of Labor.[1] This report states that of 1,118 establishments reporting, 569 state that they have difficulty in obtaining skilled workmen. The trades in which this difficulty is the greatest are the metal and machine trades, the printing and clothing trades and the glass industry.

Of the 1,166 concerns reporting on the number of skilled workmen trained in the establishment, 74 stated that "all," 435 reported that the "majority," 437 stated that "few," and 210 that "none" were so trained.

The apprentice system, in the modified form in which it exists in modern factories and shops, is not, apparently, sufficient to supply skilled workmen. The report of the New York Labor Bureau on this point for the state of New York may be taken as characteristic of other localities. Of 460 establishments, belonging to six industrial groups, reporting on the question as to whether the apprentice system meets the need for skilled workmen, 309 state that it does not. The number of apprentices to employees in these various establishments is 4.8 to each 100.

Even in so far as it exists the apprentice system, as at present conducted, is open to various objections. Young men object to the low wages paid to apprentices and it is held that many apprentices learn a trade in two years and practically do a journeyman's work at one-third a man's pay. That there is justification for this objection is shown in the fact that in not a few trades, such as foundry work, piano making, printing and carpentry, apprentices may begin as low as $3 to $4 per week with a very slow rise. It is, therefore, held that skilled work is often obtained as cheap labor under the guise of the apprentice system.

A further objection is that the so-called apprentice is given

[1] Department of Labor Bulletin, State of New York, Sept., 1909.

practically no assistance to obtain a broad training in his craft, that the system trains only in a narrow field of work, fitting the youth merely for some special line and that in no sense is there given the through instruction, both practical and theoretical, that produces a finished workman.

The second social force that has brought the question of industrial education to the front is the close competition that exists between commercial nations. It would seem that in proportion as a country has lacked abundant raw materials it has seen the importance of creating highly skilled labor in order to manufacture cheaply the raw materials of other countries and thus maintain itself industrially. Germany early saw the necessity for an industrially trained people if it was to compete in the world markets, and it is probably the high technical skill of its people that has put the German Empire in the forefront of industrial nations.[1]

Albert A. Snowdon in a study of the technical schools of Wuerttemberg, makes this statement, "When it is observed that Wuerttemberg is also producing its share of the agricultural output of the Empire . . . what the industrial achievement means in the face of natural disadvantages, becomes clear. It means that Wuerttemberg workmen have taken their place in the front rank of that industrial army that is fairly started on a conquest of the world trade. No one in possession of the facts will deny that this campaign has been well planned, or that Germany is making rapid progress in this direction England has already been successfully invaded, and the 'practical Yankee' set at naught. Take this illustration, as one of many, the single item of machinery and tools. Germany's sales to the United States have doubled in the five years from 1900 to 1905. Meanwhile American sales to Germany, in this line, are now about one-third of the totals of five years ago. For the same period, Germany now sends to England twice as much finished products, receiving only two-thirds the former imports. To Sweden, Denmark, Argentine and Chile, Germany now sends double the quantity of machinery and tools exported five years ago, while to China it sends five times the former amount. . . Our consuls, importers and manufacturers who are in touch with the situation seem to have agreed that this successful German invasion of the world's markets is the logical outcome of the greater average efficiency of her workmen."[2]

---

[1] Albert A. Snowden: The Industrial Improvement Schools of Wuerttemberg, Teacher's College Record, Columbia University, Nov., 1907.

[2] The Industrial Improvement Schools of Wuerttemberg, Albert A. Snowden.

To-day in Austria, Belgium, Germany, Switzerland, France and Italy state aid to support industrial education is considered a national duty. Japan, just pressing forward as an industrial nation, is taking up the question of technical education. Those best acquainted with conditions in China hold that thorough industrial training is the thing most essential in that country to bring it into the rank of a commercial power.[1]

The intense industrial struggle that is forcing the question of vocational education into prominence is thus described by Omer Buyse: "The industrial and commercial nations of the world have entered into an ardent emulation to utilize and organize with a very frenzy a larger and larger share of the universal production and transportation. Prodigies of strategy are displayed in the effort to conquer the world market and to exclude competition. No means capable of increasing the efficiency of effort is neglected in the sharp struggle to reach every corner of the globe."[2]

The United States with great natural resources has until recently slighted the systematic technical training of its workmen. It is estimated that there are in the United States considerably less than 200 schools, wholly or in part devoted to manual training. Of institutions primarily devoted to training youth to those practical arts by which they may make their living the number scarcely reaches forty according to Carroll D. Clipfell.[3]

At present industrial education is being discussed practically both by employers and labor unions, and pedagogically by educators.

Economic conditions are putting new demands on the educational system. These demands are creating re-adjustments in both curricula and methods of work. Further there is at present a strong tendency toward public management of this phase of education.

CHAPTER II

Technical Training in Chicago Public Day Schools

Not for two generations has there been so great an educational transformation as is taking place at present. The public industrial schools of Germany, England and France have long been an established fact. Private trade schools in the United States that have attempted to do the work done by European

[1] William H. Brewster: The Evolution of New China, page 132.
[2] Omer Buyse: Methodes Americaines d'education generale et technique. page 7.
[3] Carroll D. Clipfell: The Practical in Modern Education, School Board Journal.

institutions have been of two classes, philanthropic schools and short term trade schools run for profit. These have been open to the objection that they turned out but half-finished workmen and men that, in times of industrial disputes, can be exploited in the interests of unfair employers.

If industrial education is a part of the public school work, is managed by the public school authorities and subject to the control of the people, the serious defects of the private trade school can be avoided. This is the position of the great body of the industrial workers who are most closely affected by industrial education.[1]

The movement for industrial education in the public schools of Chicago has arisen in response to urgent social demands along the lines just designated.

Dissatisfaction with the results of the work of the present school curriculum together with the fact that so large a number of boys and girls leave school before even completing the work of the grades has created a demand for modifications in the educational system. Most of these boys and girls must find a place in industry. They are fitted for no kind of work and will fall into unskilled labor with little opportunity to advance.

Technical education in day schools is at present in Chicago conducted principally in two high schools, the Lane and the Crane. The Lane school is the one more recently established, is the better equipped and the larger. It draws its pupils from the north and west sides of Chicago, from about one-third of the population of the city. In September, 1909, 1600 pupils were enrolled in the school, all boys. It is significant that 50% of all the boys in the 17 high schools of Chicago are in these two high schools, the Lane and the Crane, and that when the Lane High school opened it reduced the percentage of boys in the Waller High school, also located on the north side of the city, from 25% to 6%. The Lane school has graduated but one class, and of that class it is estimated that not more than 12½% went to college.

The work done in the two technical high schools does not differ in any essential points. There are three courses of study offered in these schools, a Latin, Modern Language and Scientific, but in the technical work there is no difference in the three courses.

Three years of shop work are required of all students and four may be taken. During the first year eight hours a week are devoted to shop work. The first year is given to wood work, and of the forty weeks ten are devoted to joinery, ten to

[1] See Report of Special Committee On Industrial Education, appointed by A. F. of L., 1906.

cabinet work, ten to wood turning and ten to pattern making. As the first exercise in joinery the boy is given a block of wood and required to plane it to a given size. He is next instructed in the making of plain joints such as those used in table legs, and finally in dovetailing. In all this work emphasis is laid on accuracy, the object being to secure the making of, as nearly as possible, a perfect joint. Speed does not seem to be taken greatly into the question, but inaccurate, wobbly joints indicating careless poor workmanship are frowned upon. It is a question of acquiring skill, of perfecting technique.

In cabinet making the principles of furniture construction are studied and applied to the construction of simple pieces of furniture, such as small tables, umbrella racks, etc. In all this work, also, care in construction is required. Emphasis is not laid largely on the boy's designing or setting problems for himself, but it is required that some problem set for the boy shall be executed by him with the greatest amount of skill.

The wood turning, which introduces the boy to various lathe tools with their application, leads directly to pattern making, the last phase of the wood work. Here patterns of parts of machines are made with due attention to the principles of shrinkage and finish. Methods of constructing various types of patterns, such as simple parted and split patterns, are taken up.

All of this work is done from blue prints prepared by the boys in their classes in mechanical drawing. Lecture rooms are attached to all shops, and machines for the instructor to use in demonstration are found in the lecture rooms.

The second year's work is done in iron. One-half of the year is devoted to forge work, one-half to foundry work, and ten hours a week are given to the work. The students are first taught the heating and forging of soft iron, soft steel and tool steel. The making of bolts, exercises in welding and tempering are given, and finally the making of chisels and other tools completes the work. All the modern machinery, steam hammer, drill press, etc., used in forge work have been installed in the school for the use of the students. To come into still closer contact with actual forge work the students are sent from time to time to visit and inspect nearby shops. Aside from the actual shop work some time is given to studying and writing up in plain concise English, short exercises on iron and steel, its location, nature, uses and the processes of handling.

The second-half of this year is devoted to work in the foundry. Instruction is given in molding in green and dry sand, and the students work in bronze, iron, copper, brass, pewter and aluminum. Management of furnaces forms a part of this work, and aside from the practice-work lectures on the physical and chemical properties of metals are given.

The third year is spent in the machine shop. Six hours a week of work are required. All of the machines found in modern shops are installed for practical work. These include hand lathes, milling machines, drill pressers, shapers and planers. The boy, by practice, is made acquainted with all the various machines. In this year the student is expected to make the parts and fit together either a steam engine or a cannon.

The fourth year shop work is elective, and is done in electricity. The student is required to design and build a motor. He is provided with the raw materials and himself makes all the parts.

Mr. Ernest Andrews, who is the instructor in this department in the Lane High school, described the manner in which he conducts the work. "As far as possible I make the work such as it would be in a factory. I instruct the boys that speed, which means time, is an important thing to an employer, and that work must be done well in the least time. Second, each boy is not allowed to do all of a process, a few make all the blue prints, a few punch all the dies. That is the way work is done in a factory and the boy should be made familiar with the way things are done in the factory from the very beginning. A teacher should be a foreman, not always gentlemanly, but should order the boys about as they will be in actual industry."

Mr. Andrews lays much stress on the need of theoretical as well as practical work, otherwise the student will be unable to deal with new conditions. Therefore he would have most of the student's time spent on principles not on particular things. The works that have aided him most as an electrician, Mr. Andrews holds, are the writings of Herbert Spencer because of his logic and economical style, representing the least effort in expression. So in teaching industrial subjects, Mr. Andrews would train the student to accomplish all his work with the least amount of effort.

Mechanical drawing, freehand drawing, and machine and architectural drawing are taught in the course. Aside from mathematics, the other sciences taught are physics, chemistry, physiology and physiography, and in the two first, especial stress is laid on those principles that can be applied in the practical work of the shops. English is taught with special reference to letter writing, primarily business letters. Exercises in English consist in working out topics that have a bearing on some phase of the work of the shops. Civics and American History, with an elective course in Economics, are the only other subjects taught in the school.

Principal W. J. Bogan of the Lane High school believes that the course of study as it now stands has too much so-called

"cultural" work and that more time should be given to fitting the boys for trades. He said, "I would have a real trade school under the same supervision as other high schools. In this trade school I would have, perhaps, a little history but much less of the academic than is found in this school. Further I would have vocational training begin in the kindergarten."

In selecting teachers for the handling of shop work some difficulty has been experienced. Two classes of teachers have been tried, but both have shown defects. Manual training teachers are found lacking in skill. This the students soon discover. As teachers, however, they are superior to the second class who are workmen, practical carpenters, blacksmiths, etc. These have much greater skill than the manual training teachers but are lacking in the elements that make good teachers.

At the Crane Technical High school the course of work is the same as at the Lane. Mr. Samuel Ritchey, head of the shop work, holds that theory and skill should receive equal emphasis. He considers both history and literature as necessary in the course, especially in wood work, since the student must have this knowledge in order intelligently to design his work and to know what has been the development in the work in wood. Mr. Ritchey would lay emphasis on the styles of architecture and furniture with their historical setting and gives much attention to the art element in the work.

He disapproves of the school shop being run on the principle of a factory. Students should perform all parts of the process or at least be instructed in every phase, and under no condition should there be a passing on of a piece of work from one to another as is done in a factory.

Further Mr. Ritchey holds that the work at the Crane school is so fundamentally educational that men entering professions would be aided by taking it, for instance, a dentist would be benefited by a course in the machine shop.

On the attitude of the school toward trade union organizations Mr. Ritchey said, "I have no sympathy for unions and trust that the boys under my instruction will never affiliate themselves with any labor union."

In addition to the work of the Lane and Crane schools an entirely different plan of procedure has been worked out at the Farragut school. It is planned here to form a continuation school. Classes are to be organized that will permit boys to work a part of the time and attend school a part of the time. The school authorities have visited the superintendents of nearby factories and secured promises to take boys who attend school and to pay them for the time they work in the shops. The boys are to work in pairs. One boy will attend school for a week while the other works in the shop. On Saturday the

boy in school will work in the factory with his mate so that he will be able to take up the work of the factory without any break. In this way the boys will change off, one being in school while the other is in the factory.

The course will take two or more years. The shop work will consist in handling stock, learning the use of tools and the operation of machines. The school course is planned to aid boys to learn more quickly the work of the shop. The work at the school will consist of mechanical drawing, freehand drawing, workshop mathematics, English, history of industry, current events and civics.

Except in a few cases no boys entering these classes will be taken if not at least sixteen years of age. This is because the employers do not want boys younger than sixteen, since the law does not allow the employment of boys between fourteen and sixteen more than eight hours a day.

Miss C. M. Towles, assistant principal of the Farragut school, pointed out that many boys drop out of school in the grades, that these boys then go to work when old enough but have no opportunity to secure any further education and are ashamed to enter lower grades. For these boys it is planned to organize work according to their needs. Industrial classes for girls are also planned at this school. The course is arranged to cover one or two years. Work is given in sewing by hand and machine, in drafting and cutting simple patterns and garments. A study of foods, including food materials, composition, uses, sources and methods of manufacture, with practical work in cooking, forms a part of the course. Cooking for invalids, home nursing, sanitation and hygiene are also offered. It is proposed later to find employment for a portion of the time for the girls outside the school in the same manner as for the boys.

Aside from the details of the work done in these schools there were certain other noticeable features. The question of discipline seemed to be entirely solved. At no time even when the boys were in extremely large groups, was there anything indicating other than healthy order. The boys moved freely from shop to classroom and back again with slight oversight but with the demeanor of well-ordered persons attending to work. In many shops a large number of boys were working with but one instructor present, but in no instance was there apparent any neglect of work.

The close attention and interest that was evident in the shops was equally apparent in the class work. Here at least were two directions in which economy was evident. First, little energy was expended in enforcing discipline, second, the close attention manifested by the boys showed that their mental energy was being utilized to the best advantage.

CHAPTER III

Industrial Education in Chicago Public Night Schools

The purpose of the continuation night schools is to offer opportunities for study to those workers who are obliged to leave school before they have completed any regular course. The work is arranged to meet the needs of artisans who desire special training in the occupations in which they are engaged.

Commercial education is so closely allied with industrial that courses are also provided for commercial studies for the benefit of clerks, stenographers and book-keepers. There is no expense involved in attendance at these schools beyond a comparatively small sum required for books.

For years the Chicago night schools had done little more than teach the use of the English language to immigrants. The change in the character of the work of these schools has come in the last two or three years, and the curricula are now patterned after the European continuation schools.

These schools also meet the needs of boys and girls between fourteen and eighteen who are already engaged in industry. Comparing the amount spent for youth in favored conditions of this age who are fitting themselves in high schools to enter professional schools, former Superintendent Cooley says, in defence of the night schools, "There is no legitimate reason why the unfortunates who are compelled to leave school and go to work at fourteen should not receive such instruction as it is possible for them to profit by. They can make as legitimate a demand on the finances of the Board of Education as any class of people who are now attending the schools." [1]

The night schools are held at the Crane Technical High School, the Lane High School, the Lake High School and in the Athenæum Building. They differ from the day schools in that those who attend are largely adults already engaged in work, many of whom have dropped out of school in the fifth or sixth grades. There are blacksmiths' helpers, who have come here to secure access to a "fire" and anvil so that they may become blacksmiths; clerks, who come to take book-keeping in order to become book-keepers.

The courses offered in the night schools are practically the same as those of the day schools, with such additions in the way of advanced work as the maturity of the students would require.

---

[1] Fifty-Fourth Annual Report of the Board of Education, City of Chicago.

The work is divided in eleven groups: wood-work, metal-work, drawing, applied science, engineering, applied mathematics, English, modern language, domestic science, and physical culture.

The wood-work includes courses in wood-turning, cabinet-making, carpentry, joinery and pattern-making. The metal-work covers practice in the foundry, in blacksmithing, tool-making and in the machine-shop.

Physics and chemistry are the two sciences taught. Physics covers such topics as forces and their applications, falling bodies, pumps, the hydrostatic press, sound, light and electricity. In the course in chemistry practice is given in the formation and detection of the simple gases, oxygen, hydrogen, chlorine and carbon dioxide; the formation and reaction of acids, bases and salts, and the analytical tests of the metals and acids. More advanced work is given in qualitative and quantitative analysis. In the latter course the work covers food analysis, iron and steel analysis, gas and water analysis, electrolysis and organic chemistry.

In engineering the first part of the year is spent on mechanics and heat, the last half of the year on electricity. The course is intended to provide the theory of electricity necessary for the practical mechanic.

The work in English is similar to that in the first year of the high school. Attention is given especially to spelling, composition, business letter writing, grammar and English literature.

The commercial courses include work in book-keeping, stenography, type-writing, commercial arithmetic, business correspondence, simple accounting and commercial law. In the latter course the law that relates to ordinary business aransactions, the law of contracts, sales, and commercial paper tre taken up.

The night schools are meeting with a steadily increasing demand for their services. The Lane school at its opening in 1908 registered 500 students. In October, 1909, the night classes at the same school registered over 1,500.

No statistics are as yet attainable for the nationality of those attending the Lane school. Of the 450 registered at the Crane night school, 208 were Americans, 76 Germans, 39 Irish, 22 Norwegian, 14 each Russian and Bohemian, 10 each English and French. The remaining 57 were of foreign parentage of various nationalities.

CHAPTER IV

Manual Training and Industrial Education

One cannot investigate far into industrial education without discovering that there are some serious points of disagreement

between many of those who are carrying on the teaching of industrial education and the advocates of manual training.

Industrial education means education directed primarily and expressly to the preparation of young men and women for vocations. Robert M. Smith, Superintendent of Manual training in the Chicago schools, says of manual training, "It is a series of exercises which require for their satisfactory execution the coöperation of the eye, of the hand and of the head, and which especially have for their end the education of these two first organs under the direction of the third." He lays especial emphasis on its educational importance and its moral influence.

In an address before the Chicago Manual Training Association, Superintendent Smith summarized the value of manual training, which he considers a carrying out of the theories of Froebel. "Manual training makes the children alert; it makes them more intelligent; it is entirely a training of the intelligence, and there is no getting off with guess-work; it cultivates the power of rapid observation. . . . It makes the children from the very first attach great importance to exactness; it goes to develop the inventive faculty." Manual training courses are given in all grades of the Chicago public schools. Since the manual training work approximates industrial education in the seventh and eighth grades only, the other grades will not be discussed.

In the seventh grade various processes in wood are taught such as beveling, boring, gauging, cope sawing, gluing and nailing, surfacing and fitting, original designing and outlining. The student is taught these processes in the construction of various objects, such as bread-boards, easels, flower-stands, book-racks, etc. The eighth grade takes up mortising, dove-tailing, counter-sinking for screws and fret work. Some of the objects suggested for the students to make are foot-stools, magazine and plate racks, knife boxes, etc.

At first this work may seem very complicated when compared with the fact that the boy in the Crane High School is first set merely to planing a block to a certain size, then is led to plain joints and dove-tailing after considerable time and practice. Mr. Samuel Ritchey, of the Crane school, criticises manual training on this very point. He holds that too much is attempted, that the work is not well done, that fitting and planing are done poorly and slovenly, and believes that the time spent in manual training, as at present conducted, is lost. "Why," said Mr. Ritchey, "cannot a boy be trained at first to make a good joint? Why must I, in the high school, go over all this work that might have been done in the elementary school? It is absurd to put boys who cannot even plane true

to making card tables, and other complicated things, that are wobbly and poorly done."

Miss Mary Snow, Director of Domestic Science in the Chicago schools, gives an explanation of the relation which she holds exists between elementary manual training and technical training in the high school.

In reply to the criticism that it is absurd to set seventh and eighth year boys to making complicated objects, she says: "The primary object in elementary grades is self-expression. The pupil designs some object in which he expresses himself; perfecting of skill is not of first consideration. When the boy enters the high school the object is changed. It now is a question of perfecting technique. For that reason great accuracy is dwelt on. After skill has been acquired there will again come a time when designing, self-expression, will be possible; this will mean the awakening of a second self-consciousness."

The unfavorable opinion of manual training entertained by some teachers in industrial courses, apparently on the ground that the manual training does not aid in giving the skill and speed so requisite in vocations, is not shared by Thomas Balliet, Dean of the School of Pedagogy of New York University. He holds that specific instruction in trades should be preceded by a broad course in manual training. "Manual training is to specific trade instruction what a liberal education is to strictly professional study."[1]

The position of the advocates of manual training on the one hand and industrial education on the other is best secured through the statements of representative educators on each side. Edwin Cooley, criticising the manual training advocates says: "Educators and others have got into the habit of defending the positions they take on curricula from the standpoint of something they call discipline and culture. . . . If manual training is under consideration, it is thought to be bad form to take into consideration its value from a vocational point of view. We are expected to show how it sharpens the powers of observation, and helps toward clear-cut thinking. To defend it from the point of view of its utility has been regarded as an undue concession to material standards of modern life. Our defense of each of the fads, such as drawing, household arts, etc., has been along the same line. It has been reserved for some very modern thinkers on education to come out squarely for vocational subjects as a part of the common school curriculum."[2]

[1] Aim of Industrial Teaching in the Public School System.—Thomas Balliet, School Board Journal.

[2] Educational Bi-Monthly, February, 1908.

On this point the Massachusetts Report on Industrial Education says: "The wide indifference to manual training as a school subject may be due to the narrow view which has prevailed among its chief advocates. It has been urged as a cultural subject mainly useful as a stimulus to other forms of intellectual effort, a sort of mustard relish, an appetizer,—to be conducted without reference to any industrial end. It has been severed from real life as completely as have the other school activities."

W. J. Bogan, principal of the Lane High School, holds that the inadequacy of manual training has been largely due to the fact that in many cases it has been hitched on the course of study by the classicists who estimate all human activities by their cultural value.

R. M. Smith, believes that the different occupations coming under the head of manual training, for instance, clay modelling, are not taught "to make all our children sculptors, what we wish is to train the children to habits of observation and attention. Neither in teaching card-board is it the object to flood the market with bookbinders, any more than we teach our boys drawing that all may turn out draughtsmen, or our girls needlework that all may become dressmakers. It is rather that in the process of card-board work the children may be taught lessons in accuracy, neatness, judgment, self-reliance and truth."

Mr. Smith makes a distinction in the methods of teaching manual training. One group follows the method of technical elements. This consists of the child's preparing the detached elements, each element designed to lead the child into one particular operation. These elements may, or may not be assembled into an object. This method, he holds, is that of the workshop, it is the method of trade instruction. "These have no other end in view than the trade apprenticeship, ignoring the needs of the elementary school, they neglect the educative side of the work and likewise the service which it can render to general instruction."[1]

The second method, which is the one followed in the elementary schools of Chicago, is called the "method of useful objects." In this the child, completes some object. Instead of making elements that are not brought together in any object, the child prepares the "parts of an object so that they may be assembled and form an object which can be utilized. . . . This method originated, not in the workshop, but in the family and also in the school. Its end is not to make workmen for any determined trade but prepare the pupils for the study of any

[1] From an unpublished lecture on "Aims and Scope of Manual Training," by Robert Smith.

trade, to render easier the apprenticeship of the manual occupation chosen later, to develop a general dexterity and to contribute to the work of education and instruction which is the double object of the school."[1]

The question apparently reduces itself to a one-sidedness in both directions. Many of the manual training advocates have seen only the cultural side, and have been satisfied with poor craftsmanship and have felt that skill which could be utilized in the economic world brought the work of the school down to too low a plane. The industrial education advocates, on the other hand, give no attention to the cultural and see little more than the production of good cooks and carpenters.

The Pratt institute of New York has attempted to secure the acquiring of skill under conditions that are educational. Good workmanship is required, but it is not acquired through merely planing an isolated block of wood; it is acquired in the process of making something in which the boy is interested and has himself designed. Technique should not be secured at the price of turning out pupils who have had all individuality destroyed, whose initiative and power of thought have been spoiled.

Any form of democratic education that puts the perfecting of human machines whose sole function is the production of wealth as the ultimate end must be a failure. Men and women must be trained as good citizens and this cannot be done if an educational system is to consider only the method of turning out economic producers.

Results must be measured, not alone in terms of wealth units, but in terms of human development. On the other hand, it is also true that any study that is removed from the actuality of life, that produces no results is equally wide of the mark.

CHAPTER V

Attitude of Organized Labor Toward Industrial Education

In studying industrial education it becomes necessary to consider the attitude toward such education of that large body of men and women making up the trade union movement and numbering in this country about three million. They are among the most intelligent in their various trades, and, usually working an eight hour day, have most leisure for study. Moreover, they exert not a little influence in determining public opinion upon various questions.

They constitute a portion of a large class that is most vitally

[1] *Ibid.*

interested in the problem of the manner in which industrial training shall be worked out.

The statement frequently met that organized labor opposes industrial education seems, after an examination of the records of their conventions and the activity of the various unions, without foundation. In 1908, at Denver, the American Federation of Labor appointed a special committee on industrial education. That committee reported at Toronto in 1909.

The substance of the report may be summarized. First, the organization condemns any system of public instruction privately controlled. It recommends, therefore, that any technical education of the workers in trade and industry, since it is a public necessity, should be a public and not a private function, that it should be conducted at public expense, by the public. For this reason the organization favors the establishment of schools in connection with the public school system, "at which pupils between the ages of fourteen and sixteen may be taught the principles of the trade."

Second, trade union organizations are opposed to narrow and prescribed training in selected trades. "The boys and girls of a country must have an opportunity to acquire educated hands and brains such as may enable them to earn a living in a SELF-SELECTED vocation, and acquire an intelligent understanding of the duties of good citizenship." They oppose making "the future workers mere automatic machines."

In several unions the necessity for technical training has become so apparant to the members that they have organized schools themselves to supply industrial training to those who belong to their organizations. The International Typographical Union was one of the first to take this up. The problem was to adopt a plan that would help both the high art metropolitan printer and the rural printer; to reach men working not alone in the United States but in Alaska and the Hawaiian Islands. The problem was solved through a correspondence school. The course consists of thirty-seven lessons that have to do with lettering, design, color harmony, composition, paper-making, plate-making and imposition. Thirteen hundred students are now enrolled in this one school.

It is sometimes objected that the unions maintain no standard of workmanship as a test of membership. The statement of the aim of the Typographical Correspondence School shows that in fact they stand for what is essentially educational, and those methods that produce artisans that are artists. The aim of their technical training is thus stated in the opening of their course of study: "In all previous typographical educational efforts . . . students were told that a certain class of work was good and another class bad, and the amount of benefit they de-

rived from the education depended very largely upon the quality of their respective memories. The student with a good memory and without well-developed reasoning often excelled a colleague not happily endowed as to memory but who possessed a well-ordered and logical mind. The commission was impressed with the desirability of adopting some system of education that would arouse the thinking faculties of the craft, thereby enabling compositors to use to the fullest extent that particular knowledge and skill which may be tersely expressed as typographical sense."

Several other unions are already carrying on similar work or contemplating it. These are the stereotypers, photo-engravers and pressmen.

A unique plan of industrial education has been worked out in Chicago by the Carpenters' Union. The plan is to have the apprentices in the carpenter's trade take three months a year or more in the public technical schools at the expense of the contractor hiring the boys, and under the supervision of a joint board which is composed of representatives of the Carpenters' Union and the employers.

This matter is covered in the apprentice rules adopted by the joint arbitration board of the Carpenters' Union and the Master Builders' Association. This reads as follows: "The contractor taking an apprentice shall engage to keep him at work in the trade for nine consecutive months in each year and see that during the remaining three months of the year the apprentice attends school during January, February and March, and a certificate of attendance from the principal of the school attended must be furnished the Joint Arbitration Board as a compliance with this requirement before he is allowed to work during the coming year."

During the session of the school last year nearly three hundred apprentices were in attendance at the technical schools. The course of study centres around architectural drawing and mathematics. Considerable attention is given to spelling and penmanship. Geography and history are taught in a minor degree. "The trade school system which we are seeking to establish in Chicago and which has been very successful up to the present time, is the only one of its kind in the United States," says John A. Metz, president of the Carpenters' District Council. Arrangements are being made this year to enter these apprentices at the Crane, Lane and Lake technical high schools.

So large a number of girls and young women have entered industry that the unions have not remained unmindful of the needs of these. The position of organized labor as stated in the report of the American Federation of Labor committee on

the industrial education for girls may be summarized. There should be a double aim in the industrial education of girls. First, there must be preparation for an occupation for immediate support. A large part of the girls now leaving school at fourteen must prepare to earn their living in industry. To these the prime interest will center in training for wage-earning. Second, training for home life. The fact is pointed out that to the young girl ability to earn money seems of such prime importance that she is inclined to minimize the need of training for domestic life, which will be of vital importance to her later. Further, the point is dwelt upon that if girls work in shops and factories they should be trained for occupations that will not be injurious to them, and incapacitate them for future mothers and home-makers.

Trade schools, giving domestic training should aim at two things: First, specific training for those who intend to make a wage-earning vocation of house-keeping in all its branches; second, a thorough training for those who wish to be prepared to conduct homes of their own.

John Golden, President of the Textile Workers' Unions, states the position of the unions on industrial education. "The same keen desire is in the hearts of all parents to see their boys make good, not as industrial specialists, as simply parts of a machine, where nothing counts but speed and production, but as men and women whose early training and education will equip them to grasp the higher technique of any trade or calling they may be best fitted for, to know the way a thing is done, why it is done, and the very best and most artistic way of doing it, coupled with an economic knowledge of the value of their labor. This, I believe, is the kind of industrial education needed. Let us all coöperate in promoting and establishing it under public control, at public expense and for all the people."

CHAPTER VI

Summary

With the rapid rise in importance of industrial education society is confronted with certain problems as to administration, and methods to be followed. It is now generally agreed that these schools must be conducted as a part of the public school system. It is well pointed out by J. S. Brown, principal of the Joliet schools, that separate schools educating separate groups will be a blow to a democratic system of education because it recognizes social classes and will help to foster them.

He further calls attention to the tendency of such schools to stratify society and array one element against another, and shows that on economic grounds public industrial education can best be worked out in connection with the public school system.[1]

There is also a danger that if industrial education is separated from the public school system that the high schools will become little more than girl's schools, or preparatory schools for college courses. E. Davenport takes the position that separate schools, if allowed to handle this problem, will give industrial training and not education, that they will create operatives not citizens, and that in case of agricultural schools they will turn out a class of peasantized farmers.[1]

The reaction against the old classical education, to which the objection was made that there was an acquirement of knowledge to no purpose, has in it the danger that the pendulum may swing too far in the other direction and lead to too great emphasis upon mere acquirement of operative skill—that we shall magnify training and minimize education proper. Technical training, properly undertaken, may be highly educational, but any attempt to secure industrial efficiency by entirely eliminating all cultural subjects will be socially destructive.

Industrial education that sees only the creation of human machines, that will as quickly as possible be able to create wealth, must in the end defeat social progress. While it is necessary that each individual shall be fitted to earn his living, there are different ways of educating a boy to do this. Mechanical skill is not all. Education should be such that it helps a man to see his trade in all its bearings, that it enables him to understand its theoretical foundation, that it puts intellectual activity behind the routine of work. It should produce men who have a broad interest in other activities, who have the capacity profitably to spend their leisure, men trained both vocationally and liberally, whose outlook is not confined to their own little trade but who intelligently understand other activities.

It is a serious social problem when social groups are unable to interpret each other, from the fact that some are trained to manual work only, others to intellectual. The educational question society must solve is how to produce all-around men and women who are efficient social agents.

---

[1] "On Commercial and Industrial High Schools vs. Industrial and Commercial Courses in High Schools," in Proceedings of the North Central Association of College and Secondary Schools.

[1] E. Davenport: "Education for Efficiency."

BIBLIOGRAPHY

American Association for Labor Legislation. Legislative Summary, No. 1, Madison, Wis., 1909. 16 p. "Industrial Education," by Edward C. Elliott.

American Federation of Labor, Report of Special Committee on Industrial Education. Published by Amer. Federation of Labor, Washington, 1909.

BALLIET, THOMAS M. "Aim of Industrial Teaching in the Public School System." American School Board Journal. Pub. by William George Bruce, Milwaukee, Wis., Jan., 1909. pp. 5 and 24.

—— ——."Manual Training, Its Educational Value," Fifty-Ninth Annual Report, Massachusetts Board of Education, 1894-5. pp. 481-499.

BUYSE, OMAR. "Methodes Americaines d'Education General et Technique." Paris, Dunod, 1908. 744 p.

BROWN, J. S. "On Commercial and Industrial High Schools vs. Industrial and Commercial Courses in High Schools." Proceedings of the 14th Annual Meeting of the North Central Association of Colleges and Secondary Schools, held at Chicago, 1909. Edited by Thomas A. Clark, Chicago. Published by the Association. 216 p.

CLIPFELL, CARROLL. "The Practical in Modern Education," American School Board Journal. Pub. by William George Bruce, Milwaukee, Wis., Jan., 1909. pp. 3 and 18.

CHAMBERLAIN, ARTHUR H. "Standards in Education with some Consideration of their Relation to Industrial Training." New York, American Book Co., 1908. 265 p.

CARLTON, FRANK T. "Education and Industrial Evolution." New York, Macmillan, 1908. 320 p.

COOLEY, EDWIN. "Practical Education." Educational Bi-Monthly, Feb., 1908, Vol. II, No. 3. pp. 193, 207.

DAVENPORT, EUGENE. "Education for Efficiency." Boston, Heath, 1909. 184 p.

DOPP, KATHERINE E. "The Place of Industries in Elementary Education." Chicago University Press, 1903. 208 p.

DEWEY, JOHN. "School and Society." Chicago University Press, 1900. 129 p.

—— ——. Unpublished Lectures on Philosophy of Education, delivered at University of Chicago.

Department of Labor Bulletin, State of New York, Sept., 1909. No. 42. 68 p.

HANUS, PAUL H. "Beginnings in Industrial Education." Boston, Houghton Mifflin, 1908. 200 p.

National Society for Promotion of Industrial Education. Proceedings of First Annual Meeting, New York, April and May, 1908. Bulletins No. 5 and 6. 68 p. and 104 p.

O'SHEA, M. V. "Dynamic Factors in Education." New York, Macmillan, 1906. 320 p.

PERSON, HARLOW S. "Industrial Education." Boston, Houghton Mifflin, 1907. 96 p.

Report of the Masschusetts Commission on Industrial Education. Public Document, Wright & Potter Printing Co., Boston, March, 1907, No. 76. 71 p.

SELDEN, FRANK HENRY. "Manual Training and Industry". American School Board Journal. William George Bruce, Milwaukee, Wis. Jan., 1910. pp. 3 and 28.

SMITH, ROBERT M. "Manual Training in the Primary Grades and its Relation to the Kindergarten." Published by Author. No date.

SNOWDEN, ALBERT A. "The Industrial Improvement Schools of Württemberg." Teachers' College Record. Columbia University Press, Nov., 1907. 79 p.

SCRIPTURE, E. W. "Manual Training and Mental Development." Manual Training Magazine, 1899, Vol. I, pp. 16-25.

VANDERLIP, FRANK A. "American Industrial Training as Compared with European Industrial Training." Social Education Quarterly, June, 1907, Vol. I. pp. 105-109.

WRIGHT, CARROLL D. "The Apprenticeship System in Its Relation to Industrial Education." Washington Government Printing Office, 1908. 116 p.

TYLER, JOHN MASON. "Growth and Education." Boston, Houghton Mifflin, 1907. 294 p.

BOOK NOTES

J. B. Basedows Elementarwerk, mit den Kupfertafeln Chodowieckis u. a., herausgeben, von THEODOR FRITZSCH. Leipzig, Wiegandt, 1909. 3 v.

These two large volumes, with a third reproducing the nearly one hundred large illustrations in copper plate of Chodowieckis, constitute a work of very great merit and will be welcomed by every teacher of the history of education throughout the world, who should know them and have them in the library of his institution. From their perusal, one realizes again that, even more than the history of education represents, Basedow was one of the great leaders and lights in pedagogy, with an originality and boldness rarely found in pedagogy. He is in the line of Comenius but carried nearly all his ideas much further. The best beginning is the plates, which here fill ninety-six large pages, with four or more cuts on most of the pages, which Fritzsch and Gillou have characterised with admirable historic insight. The whole work is reproduced in the style current in Basedow's day. The idea of this very carefully chosen and elaborated series of pictures is to reproduce every characteristic incident of human life and make this the centre of all instruction. The first cut, for instance, shows a mother nursing her baby, with an older child helping, while a nurse feeds another, and still another is eating from a well-spread table. The rest of the picture is filled with all kinds of marketables. The second represents a large family at a richly spread table, the father and the older girl rising to feed a beggar who has just come in. Then comes a wardrobe with all sorts of clothes for men and women hung up, then children engaged in four different kinds of mischief, then a collection of habitations from the savage tent and hut to an elaborate city building, then a long series of games, followed by various wild and domestic animal groups, mountain and geographical scenes, etc. The author was severely criticised in his day for including pictures of a woman who had just borne a child, with a nurse and doctor present, surgical operations, hospital scenes, representations of faults, even an execution on the gallows, a dissecting room, the slaughter and dressing of animals, funerals, deathbed scenes, the devil, drunken people, types of crime, war, a hold-up scene, various forms of temptation; but his defence was that the child must know life. He also represents the most characteristic lines of industry and human occupations, circuses, acrobats, naval scenes, battles with savages, conflagrations, incidents of war by sea and land, martyrdom, athletic contests, fortresses, cathedrals, church scenes, shipwrecks, earthquakes, etc. Few people did more than Basedow to increase the dignity of the teaching profession, to give pedagogy recognition in the university, to stress industrial, moral, sexual pedagogy and patriotism. This work has already been received in Germany with distinct acclaim. It is on the whole a monumental work.

L'éducation des anormaux. Principes d'éducation physique, intellectuelle, morale, par JEAN PHILIPPE et G. PAUL-BONCOUR. Paris, Alcan, 1910. 212 p.

This work begins with a brief sketch of the results of medico-pedagogical study which has been applied to classifying abnormal children and then proceeds to give certain general principles pertaining to their physical and essentially moral education, dwelling especially upon memory, imagination, attention and character. They describe step by step the various stages of the development of these children and dwell upon various methods that have been proposed. It seems very singular that in these days of rapid and now great differentiation of the different classes of abnormalities these authors should still follow the old psychological rubrics when the different types of children involved have so little in common. We should have expected, too, a good discussion of the work of Binet in establishing norms, for this is by far the most important work in this field of recent years.

Household foes. A book for boys and girls. By ALICE RAVENHILL. London, Sidgwick & Jackson, 1910. 359 p.

The object of this excellent little book is first to arouse the interest of young people in the practice of daily domestic cleanliness and to give them reasons adapted to their comprehension for the new demands made upon their perseverance and energy. The second purpose is to indicate the possibility of forging links between school lessons and home habits and to encourage the application of the former and to add dignity to the latter. The practice of healthy living in the twentieth century is by no means easy, especially as so many things once optional have become now obligatory. Hygiene teaching must be greatly increased. The most attractive of the eighteen chapters are on the causes of dirt at home and how to control it; visible and invisible enemies in the air; damp air as a source of dirt and decay; living sources of dirt, visible and invisible; the first visit to a dilapidated house, the second visit; Aunt Rachel's microscope; imperial safeguards.

Medical examination of schools and scholars, edited by T. N. Kelynack, with an introduction by Sir Lauder Brunton. London, P. S. King & Son, 1910. 434 p.

The Education Act of 1907 began a new era in the health of British children and this wise and vigorous leader in child study and welfare, who already wants to establish a national bureau devoted to this subject, has collected a list of twenty-three lectures by experts upon different aspects of the subject. E. W. Hope discusses correlation of the school medical service and that of public health; Dr. Reid and Dr. Howard, medical examination of schools; Dr. Dukes' examination of boys; Dr. Alice Crothorn, that of girls; Dr. Edwards, that of children under the poor laws; Dr. Melville, the army; Dr. Simey, medical supervision and games, and so by the other writers the eyes, ears, nose, teeth, defective minds, school clinics, feeding, open air schools, school nurses, examination of the teacher are discussed. Then follow a series of a dozen chapters on medical examinations of schools and scholars, medical inspection in the schools of different nations, Scotland, Ireland, Wales, Canada, Australia, New Zealand, United States, Germany, France, Norway, Sweden, Denmark, Switzerland. This is the best compend on the subject just now that exists, as indeed it ought to be, since it is the latest. Many of the authors append useful literature.

Report of the medical officer (education) for the twelve months ended 31st December, 1909. London County Council. London, P. S. King & Son, n. d. 96 p.

This is a thorough and scientific report upon elementary schools including buildings, anthropometry, teeth, medical examinations, etc. Then follow training colleges for higher education, school nurses, medical treatment, dust allaying, preparation, teaching of writing, stammering, vision, the infectious diseases and finally, special schools for mental defectives, epileptics, blind, deaf, with sections on open-air schools, continuation, etc.

Moral education by A. G. FLACK. New York, Cochrane Publishing Company, 1910. 61 p.

There is nothing to indicate who this author is, what his experience has been, no index, so far as we observe, no reference to any other writer in this volume except two or three allusions in the preface. The virtues he stresses are truthfulness, justice toward material property, beauty and manners. The reader is left with the impression that the author is a woman.

Problems of the elementary school, by ARTHUR C. PERRY, Jr. New York, Appleton, 1910. 224 p.

This problem consists of two parts. The first is the broad and general one of organic structure; the second one deals with specific phases as planned by the teacher or principal. The first part is treated very slightly. The second discusses such topics as English in the upper grades, compensation, grammar, history facts, arithmetic devices, the blackboard, the museum, the alumni, and the care of adolescent girls. The author has great confidence in little details and special devices, but the great defect of this book is that on nearly every topic, save English, the author shows only the most limited acquaintance with the literature of the field he treats. Happy that the day has come when teachers are seeking broad comparative views of what is done in each field of education.

Le droit de l'enfant abandonné et la système hongrois de protection de l'enfance. Ouvrage publié sous les auspices du ministère royal de l'interieur de Hongrie, par ZOLTÁN DE BOSNYÁK et L. EDELSHEIM-GYULAI. Budapest, Imprimerie de la Société Anonyme Athenæum, 1909. 511 p.

After a preface by Count Andrassy of the Hungarian Academy, these authors discuss in the first book the rights in general of abandoned children. Then follows the legal system of protection of children by the state in Hungary. The third book treats of their protection by society, and the last characterizes the defences in that country which society has erected against the criminality of minors.

An outline of individual study, by G. E. PARTRIDGE. New York, Sturgis & Walton, 1910. 240 p.

This book is an outline of psychological, anthropological, biographical and other methods of study of individuals, intended primarily for the use of those interested in the study of children as individuals and also for students of education, teachers, parents and physicians. Part one is devoted to variability in the race and individuals, and parts two and three describe simple methods of studying the body and the mind to outline salient points and compare one person with another or with a group. The last part contains a study of twin children, a chapter on types and another on pedagogical aspects of individuality.

The standpoint of individuality is stressed throughout. The work constitutes a valuable addition to child study literature.

L'Evolution psychique de l'enfant, par DR. HENRI BOUQUET. Paris, Bloud & Cie., 1910, 101 p.

The author restates very briefly the best known facts concerning early child life verified by his own experience as an infant specialist. The book is addressed to teachers, physicians, students and the cultivated laity and hence is didactic rather than scientific.

Genesis; a manual for the instruction of children in matters sexual for the use of parents, teachers, physicians and ministers, by B. S. TALMEY. N. Y., Practitioners' Publishing Co., 1910. 194 p.

This volume, with its nineteen cuts and forty-seven drawings, is dedicated to the author's baby daughter. He discusses the prevailing silence on these subjects, the ignorance of parents, the alleged evil of education, the impossibility of maintaining ignorance, its evil and the need of information, the degradation of sentiment, moral confusion and a change of policy. The second part is devoted to special lessons. The first is for infancy and early childhood and then follow a lesson each for children from four to seven, from seven to ten, from ten to thirteen, from thirteen to sixteen, from sixteen to eighteen. The work contains a good deal of useful information, but the writer is not sufficiently informed on the literature of the subject and has not apparently mastered the literature of the Freudian School. At any rate, he does not make use of it.

Education in sexual physiology and hygiene; a physician's message, by PHILIP ZENNER. Cincinnati, Robert Clarke Company, 1910. 126 p.

This consists of talks to college boys on sexual physiology and hygiene and social diseases to which are added chapters on prevention of social diseases, teaching these subjects in the school, and the method and the teacher. It is intended as a message from a physician to the people. An experiment in which a lady teacher talks to girls and is followed by the author of this work, is described. The work is interesting and sensible, but the author does not appear to be acquainted with the literature upon the subject.

Text-book of school and class management, by FELIX ARNOLD. Volume 2, Administration and hygiene. New York, Macmillan, 1910. 288 p.

In the last number of this *journal* we reviewed the first volume, which is devoted to the relation between principal and teacher and class management. The present volume takes up the further problems of school control, organization, classification, hygiene, etc., and such aspects of administration as concern the principal, *e. g.*, the school building, personnel, function of the school and the board. The author tells us that "both volumes constitute a complete text-book of school management and administration in so far as these phases of school work concern both the principal and the teacher." This volume goes rather more into detail than the first.

A history of the United States for schools, by S. E. FORMAN. New York, Century Co., 1910. 419 + 71 p.

This history is rather full on the Western movement, which was regarded as one of the most imposing ever witnessed by man as well as one of the most inspiring for classroom purposes. It takes us down to Taft's administration, with much about cotton mills, Bell and

Edison, flying machines, harvesters and threshers, Peary and the North Pole, the Philippines, the Panama Canal, the St. Louis Exposition, etc.

Elements of United States history, by EDWARD CHANNING, in consultation with SUSAN J. GINN. New York, Macmillan, 1910. 349 + 60 p.

The author claims, in the presentation of this book, to have had constantly in mind the pupil's point of view, American in particular, and its development, and everything is made more interesting by being regarded as parts of a continuous whole. It contains many illustrations, maps, etc. But with all the many text-books on the subject in existence, it is not very clear that this has a *raison d'être*.

A bibliography of history for schools and libraries, with descriptive and critical annotations, by CHARLES M. ANDREWS, J. MONTGOMERY GAMBRILL and LIDA LEE TALL. New York, Longmans, 1910. 224 p.

This is an admirable work, done under the auspices of the Maryland History Teachers' Association by a committee appointed for the purpose. The lists have been several times revised and enlarged. Its scope can be seen by the topics under which the references are grouped: the study and teaching of history and historical aids, world histories, ancient histories, including antiquity in general, Rome and Greece; then European, English, American history (which is much stressed), and histories of countries not included elsewhere. Then comes a list of historical stories for the elementary school and for young children, preparatory to history rather than history itself.

A letter to American teachers of history, by HENRY ADAMS. Washington, 1910. 214 p.

This veteran, who was a leader in the newer methods of academic teaching of history, here sums up his experiences and observations with new ideas in a booklet of two chapters, one stating the problems and the other giving its solution.

The conflict of naturalism and humanism, by WILLYSTINE GOODSELL. Teachers College, Columbia University, Contributions to Education, No. 33. Teachers College, Columbia University, N. Y. City, 1910. 183 p.

The writer first treats the naturalism and humanism of the Renaissance, then in the 17th and 18th century, then in the German enlightenment and conflict of these two in the 19th century, with special reference to education. The last chapter develops the pragmatic theory of nature and of man in their mutual relations, the pragmatic theory of knowledge and its contrasts to both humanism and naturalism. The concluding section treats of the applications of pragmatic philosophy to education.

Seventy-third annual report of the Board of Education. January, 1910. Boston, Wright & Potter Printing Co., 1910. 285 + 83 p.

This report is of special interest as it is the first of the new board which took office July 1, 1909. This board found itself charged with the duties and responsibilities of both the state Board of Education and the Commission of Industrial Education, each of which had its own machinery for discharging important duties that belonged to it. To avoid any temporary injury of educational interests in the transformations that were necessary, the former secretary, G. H. Martin, acted as treasurer until the appointment of his successor. This vol-

ume is thus made up of reports from the different normal schools and the various departments, without the usual report from the secretary.

Report of the commission on the cost of living. May, 1910. Boston, Wright & Potter Printing Co., 1910. 752 p.

This commission was appointed March, 1909, organized March, 1910, and had to report May 1st, so that the time allowance was very scanty. The findings of the committee are that the primary cause of the world-wide advance of prices since 1897 is the increase of the gold supply, next comes the enormous waste of income by uneconomic expenditures for war, extravagance and wastage generally. The third cause is complex. On the side of supply, the effort is to reduce the volume and increase the expenses of raw material and on the side of demand, to extend and diversify the consumption of this as to tariffs, trusts and unions which have been thought to be either primary or contributing to the high cost of living. The commission thinks that "none of these factors can be regarded as a direct and active cause of the recent increase of prices."

Social and mental traits of the negro; research into the conditions of the negro in Southern towns. A study in race traits, tendencies, and prospects, by HOWARD W. ODUM. N. Y., Columbia University, 1910. 302 p.

The author's purposes are three: first, to contribute to the scientific knowledge of the Negro in the South and to analyze his qualities and second, it is a beginning of a larger and more thorough study of the same topic. The third is to suggest means by which the heart of the problem can be reached. He seeks to avoid generalities and discusses Negro schools; church, religious, fraternal and benevolent organizations; home life; diseases; morals; offenders; the social status; the emotions and relations to conduct; and finally attempts a general estimate of the Negro. Of all the studies that have appeared on this subject, none have been so thorough and detailed as those of Dr. Odum, the first of which on The Religion of the Negro, originally appeared in the *Journal of Religious Psychology* at Clark.

Some great stories and how to tell them, by RICHARD THOMAS WYCHE. N. Y., Newson & Co., 1910. 182 p.

This book, by the best of story tellers for school children in this country, should be in the hands of all who practice or care for this art. His first chapters are on the origin of story telling; interest in it to-day; what kind of stories; retelling; the story in the Sunday School, on the platform, in the social circle; kindergarten leagues and clubs; the story of the fundamental need of the child; the psychological principles of how to tell a story; and in the last part, a series of stories told with great success by the author, viz., Beowulf, Arthur, Sir Gawain, Santa Claus, Jesus, and an interesting bibliography ends the book.

A course in the theory and practice of higher accounting, prepared for students of Eastman College, by HENRY HEITMANN. Poughkeepsie, Eastman College, 1910. 240 p.

This book is somewhat unique as there is no really serviceable work furnishing thorough and practical exercises for students in its field. Only an expert or a teacher experienced in the subject could judge of its merits in detail, but it is apparently a well devised and valuable contribution to the subject.

Shop problems in mathematics, by WILLIAM E. BRECKENRIDGE, SAMUEL F. MERSEREAU, CHARLES F. MOORE. Boston, Ginn, 1910. 280 p.

This book aims first to impart to the student information in regard to shop and shop materials, including the names of parts of machines used in wood and metal work and second, to train in the mathematical operations so useful in shop practice and science. There are over 150 illustrations and many tables and problems.

What to do at recess, by GEORGE ELLSWORTH JOHNSON. Boston' Ginn (1910). 33 p.

This writer, whose work on plays and games was a classic years ago, attempts here to give very specific instructions as to recess plays, games and dances. This volume is copiously illustrated and it should be in the hands of every teacher who knows or cares anything about how children spend their recess.

The rose garden of Omar Khayyám founded on the Persian, by EBEN FRANCIS THOMPSON. Privately printed. (Worcester), 1910. 27 p.

Eben Francis Thompson here reprints another of his versions of Omar Khayyám, who has generally been thought a materialist and atheist. Here we have, however, abundant proof of his belief in God and in a future state. Many poems praising wine are spurious, although we need not, like Nicholas, interpret them as mystical references to deity, so that he was neither a sot nor a scoffer. He probably "bragged more than he drank." Indeed, his many-sidedness has made him regarded in very different ways by different individuals. The translation is certainly very pleasing, although one who does not know the original cannot speak critically of this point.

The tragedy of Hamlet; a psychological study, by HENRY FRANK. Boston, Sherman, French & Co., 1910. 319 p.

This is a psychological discussion of the ghost, Hamlet's mental transformations, his meditations on suicide, the fate of Ophelia, was Hamlet insane, analysis and interpretation of the characters in Hamlet, the art and morale of the play, the study of Shakespere as a liberal education. There are twelve full page illustrations of different great actors who have won fame in this part, from Garrick to Forbes Robertson.

The arts course at medieval universities with special reference to grammar and rhetoric, by LOUIS JOHN PAETOW. University Studies, vol. 3, no. 7, January, 1910. Urbana-Champaign, University press. 134 p.

The chapters are, the neglect of the ancient classics at medieval universities, grammar, and the decline of the study of the languages, rhetoric and the business course.

Justice to the Jew; the story of what he has done for the world. New and revised edition. By MADISON C. PETERS. New York, Trow press, 1910. 244 p.

The chapter headings are, the Hebrew Commonwealth, a model for the American Republic; Jews not jewels in the discovery of America; the Jews in early America; the Jew as a soldier and patriot; what the Jew has done for the world; money and the Jews; Jewish traits and characteristics; justice to the Jews.

State school systems. III. Legislation and judicial decisions relating to public education, October 1, 1908 to October 1, 1909, by EDWARD C. ELLIOTT. United States Bureau of Education, Bulletin, 1910, no. 2. Washington, Government Printing Office, 1910. 305.

This is in a sense a continuation of the bulletins of 1906 and 1908, classifying and annotating the legislation of different states in matters pertaining to education.

A text-book of field zoölogy; insects and their near relatives and birds, by LOTTIE E. CRARY. Philadelphia, Blakiston, 1910. 364 p.

This work is intended for students who have but little previous knowledge of insects and animals, the latter being the more familiar ones. Field work and class work are points of view chiefly considered. It is assumed that life is the most interesting of all things and that it is a continuous fact no matter how we proceed, whether from simple to complex or from low to high or conversely. There are 117 illustrations.

Die Judenpogrome in Russland, herausgegeben im Auftrage des Zionistischen Hilfsfonds in London von der zur Erforschung der Pogrome eingesetzten Kommission. Köln, Jüdischer Verlag, 1910. 2 v.

This work is the result of a great deal of investigation and is fullest between December, 1905, and July, 1906. The Russian outrages upon the Jews are set forth in great detail and the whole policy of Russia toward this race is given a copious exposition.

Macaulay's Essay on Warren Hastings; edited with notes and an introduction by Samuel Tucker. New York, Longmans, 1910. 176 p.

Sir Walter Scott's Quentin Durward; edited with notes and an introduction by Mary E. Adams. New York, Longmans, 1910. 549 p.

Thoreau's Walden; edited with notes and an introduction by Raymond Macdonald Alden. New York, Longmans, 1910. 283 p.

Macaulay's Essay on Lord Clive; edited with notes and an introduction by Preston C. Farrar. New York, Longmans, 1910. 135 p.

Francis Parkman's The Oregon trail; edited with notes and an introduction by Ottis B. Sperlin. New York, Longmans, 1910. 363 p.

Charles Dickens' A tale of two cities; edited with notes and an introduction by Frederick William Roe. New York, Longmans, 1910. 388 p.

Elements of algebra, by ARTHUR SCHULTZE. New York, Macmillan, 1910. 309 p.

The story of Sigurd the Volsung, written in verse by WILLIAM MORRIS, with portions condensed into prose by Winifred Turner and Helen Scott. London, Longmans, 1910. 136 p.

Agriculture and its educational needs, by ANDREW SLOAN DRAPER. Syracuse, Bardeen. 92 p.

Fourth annual report of the President and of the Treasurer of the Carnegie Foundation for the Advancement of Teaching. 1909. New York, 1909. 201 p.

Angelic wisdom concerning the divine love and the divine wisdom, by EMANUEL SWEDENBORG. New York, American Swedenborg Printing and Publishing Society, 1908. 598 p.

An epitome of the diagnosis and treatment of nervous diseases including bromide therapy, by HENRY IRVING BERGER. St. Louis, Peacock Chemical Company, 1910. 42 p.

Ueber die biologische Funktion des Bewusstseins, von JULIUS PIKLER. Estratto dalla Rivista di Scienza "Scientia," vol. V, anno III (1909), N. X.—2. Bologna, Zanichelli, n. d. 13 p.

A collection of Eastern stories and legends for narration or later reading in schools; selected and adapted by Marie L. Sherlock. London, Routledge, 1910. 141 p.

Le verbcoromia (*Contribución al estudio de las facultades expresivas*), por VICTOR MERCANTE. Madrid, Jorro, 1910. 197 p.

Uber Gesetzgebung und Kindermord. Wahrheiten und Träume, Nachforschungen und Bilder, von JOHANN HEINRICH PESTALOZZI, herausgegeben von Karl Wilker. Leipzig, Barth, 1910. 274 p.

Die Leitgedanken. Meiner Naturwissenschaftlichen Erkenntnislehre und ihre Aufnahme durch die Zeitgenossen, von ERNST MACH. Estratto da "Scientia," Rivista di Scienza, Vol. VIII, anno IV (1910), N. XIV.—2. Bologna, Zanichelli, n. d. 18 p.

Die taktile Schätzung von ausgefüllten und leeren Strecken, von HELEN DODD COOK. Leipzig, Engelmann, 1910. 130 p.

NOTE

PUBLIC INSTRUCTION IN NETHERLANDS-INDIA

Public instruction in Netherlands-India has been lately revived after a period of decay. Between 1873 and 1882, 249 new schools were opened, making a total of 512. In the Philippines, the Spanish system accomplished great results and prepared the way for the revolution and has made the Filipinos the leaders of the Malay races. This tendency was more or less feared by the Dutch. Moreover, it was seen that in the 1872-84 educational movement, the course was too Occidental. Hence, after considerable preparation, a scheme of native instruction was launched in 1893, with two types of training, one European and the other native, the former being open equally to children of European, native, and mixed parentage. The schools are patterned largely upon the home system in Holland, the primary and secondary together footing up two years shorter than the course in this country, but doing quite as much. In Netherlands-India, there is as yet no higher academic course. The present scheme secures civil service. In 1905 it was necessary to add Dutch to the schools to prevent overcrowding native-European type of schools. The sexes are separated; twenty pupils in a locality justifies a school; there is no religious training. Officials, instead of sending their children to the home country, even at a tender age, for their education, here send to these schools. The Dutch do not believe that the child of the official should be separated from his home. The prejudice against the Chinese is strong and felt even by the government. Dutch is the refuge from the many languages that prevail here. Before, the Dutch only educated a few natives that they could use for administrative purposes; now education is open to all. Here, as in the Philippines, the rural population must read, write and cipher, for the interests of the country. In normal schools pupils have stipends. The policy of culture has superseded that of exploitation for the native population must be protected. The Malay is often content with the semblance of power but he strongly desires to be ruled by his own people. The training here is best, perhaps, for the native judiciary, but medicine and the industrial arts are also well taught. Students who finish courses still expect the government to employ them.[1]

[1] Ninth Annual Report of the Director of Education, Philippines. Manila, 1909